BASELINE ECOLOGICAL ASSESSMENT

CONSULTANTS

PROJECT SITE:

U.S. ENVIRONMENTAL PROTECTION AGENCY
BROWNFIELDS ASSESSMENT DEMONSTRATION PILOT GRANT
PHASE II ENVIRONMENTAL SITE ASSESSMENT
J-PIT REDEVELOPMENT PROJECT
GARY, LAKE COUNTY, INDIANA

PREPARED FOR:

CITY OF GARY
DEPARTMENT OF ENVIRONMENTAL AFFAIRS
504 BROADWAY, SUITE 1012
GARY, IN 46402

PREPARED BY:

V3 CONSULTANTS
7325 JANES AVENUE, SUITE 100
WOODRIDGE, IL 60517
630.724.9200

MAY 17, 2002
REVISED DECEMBER 2, 2002
REVISED SEPTEMBER 19, 2003
REVISED NOVEMBER 12, 2003

We hereby certify that this Baseline Ecological Assessment Report has been prepared by V3 Consultants, for use by the City of Gary, its affiliates, lenders, and assignees.

Project Staff:

Marc E. Wojtczak
Ecologist

Louis P. Moran
Senior Soil Scientist

Approved by:

Edward J. Shadrick
Wetland Delineations Coordinator
Senior Ecologist/Project Manager

Thomas E. Slowinski
Principal, Director of Wetland/Ecology Group
Watershed Services Division

TABLE OF CONTENTS

INTRODUCTION AND BACKGROUND

The subject properties were investigated by V3 Consultants (V3) on January 11 and 14, 2002, to determine the presence, extent and quality of any wetlands or other areas under US Army Corps of Engineers (ACOE) or State of Indiana, Department of Environmental Management (IDEM) jurisdiction. Large wetland areas and those associated with remnant dune and swale complexes were not staked during the initial field investigation. A growing-season floristic inventory of each pilot section was conducted on May 28, 2002. Additional floristic data collection and wetland boundary staking was completed on September 3 and 4, 2003. Delineated wetland boundaries were marked in the field using wooden stakes topped with pink ribbon flagging labeled "Wetland Delineation" and numbered consecutively from one to the end. Wetland stakes were located in September 2003 using a hand-held GPS unit; these wetland boundaries are depicted on Exhibit V of this report. Thus, this report summarizes the results of the wetland investigation and provides technical documentation for all delineated wetlands. The report also contains preliminary information on other ecological aspects of the site, such as endangered or threatened species and environmental pollution concerns.

The 216-acre project area is generally bordered by 15th Avenue to the north, West 23rd Avenue to the south, Calhoun Street to the east, and the Elgin Joliet & Eastern Railroad to the west (SE ¼ Section 11, SW ¼ Section 12, NW ¼ Section 13, and NE ¼ Section 14 T36N R9W 2nd Principal Meridian); Lake County, Indiana; Highland Quadrangle; Exhibit I). The project area is divided into five separate parcels identified respectively as the Green Space Site (J-Pit) and four Pilot Sections, numbered one through four (see Exhibit V). Individual parcels are briefly described below.

The Green Space Site, also commonly referred to as the J-Pit, encompasses 114.00 acres bounded by the Elgin Joliet & Eastern Railroad to the west, 17th Avenue to the north, Colfax Street to the east, and the 21st Avenue Right-of-Way (ROW) to the south. This location is a former gravel and sand quarry that is being maintained by pumping.

Pilot Section 1 is 16 acres bounded by Hobart Street to the west, 15th Avenue to the north, Dallas Street to the east, and 17th Avenue to the south. The Gary Landfill is located southeast of Pilot Section 1 and the Green Space Site is located to the southwest.

Pilot Section 2 is 23 acres bounded by Fairbanks Street to the west, 21st Avenue to the north, Colfax Street to the east, and 23rd Avenue to the south. The Green Space Site is located directly north of Pilot Section 2. This location apparently was subdivided and is partially paved, but was not completed.

Pilot Section 3 is 27 acres bounded by Colfax Street, 22nd Avenue, Hamlin Street, and King Street to the west; 21st Avenue to the north; Calhoun Street to the east; and 23rd Avenue to the south. The Gary Landfill is located directly north of Pilot Section 3.

Pilot Section 4 is 36 acres bounded by the Elgin Joliet & Eastern (EJ&E) Railroad to the west, the 21st Avenue ROW to the north, Fairbanks Street to the east, and 23rd Avenue to the south. The Green Space Site is located north of Pilot Section 4 and Pilot Section 2 is located directly east.

The National Wetlands Inventory (NWI) map (Exhibit II) identifies five wetlands as potentially occurring within the project area. These five wetlands are described by the following three wetland habitat types:

- Seasonally flooded emergent (PEMC)
- Excavated seasonally flooded emergent (PEMCx)
- Excavated semipermanently flooded unconsolidated bottom (PUBFx)

Three excavated semipermanently flooded emergent wetlands (PUBFx) are identified as potentially occurring on the Greenspace Site, as well as one excavated seasonally flooded emergent wetland (PEMCx). One seasonally flooded emergent wetland (PEMC) is identified on the southem half of Pilot Section 4. No wetlands are identified as occurring on Pilot Sections 2 and 3.

Soils within the project limits were mapped by the Natural Resources Conservation Service (NRCS) in 1972[1]. Three soil series have been mapped within the project area, as shown in Exhibit III. These are Oakville-Tawas complex (OkB), Tawas muck (Ta), and Urban Land (Ur). Tawas is listed in Hydric Soils of the United States (1991).

Exhibit V is a 1" = 200' scale DigiAir™ aerial photograph (Fall 2002) showing the location of sampling points around each wetland perimeter, and in investigated upland areas. The approximate limits of wetlands within the subject property, as determined by our interpretation of soils, hydrology and hydrophytic vegetation and derived from GPS locations taken during the September 2003 site visits, are indicated on the aerial photograph. The wetland boundaries had not been surveyed at the date of this report. Mr. Stephen Sprecher of the Detroit District, US Army Corps of Engineers has suggested that a survey is not required, providing that there is sufficient buffer between wetlands and any proposed development. The Detroit District usually requires a minimum buffer width of 50 feet, although narrower widths are possible.

[1] Soil Survey of Lake County, Indiana. 1972. U.S. Government Printing Office, Washington, D.C.

REGULATORY REQUIREMENTS

U.S. ARMY CORPS OF ENGINEERS

Pursuant to Section 404 of the Clean Water Act, the ACOE has jurisdiction over the placement of fill or dredged material in all jurisdictional waters of the United States. Jurisdictional areas include wetlands, rivers, streams, small tributary waterways, lakes, and natural ponds. A Section 404 permit must be obtained before placing any fill material within a jurisdictional area. Wetlands that lack a connection to a surface water tributary system are considered isolated wetlands and are not regulated under the Clean Water Act.[2]

In addition, excavated ponds do not meet the definition of a natural pond and do not generally qualify as jurisdictional "waters of the United States", as defined by the ACOE. Specifically, the following areas are not generally classified as "waters of the United States", according to the stipulations in the preamble to 33 CFR Parts 320 through 330, Vol. 51, No. 219, November 13, 1996, page 41217:

- Non-tidal drainage and irrigation ditches excavated in dry land.
- Artificial lakes or ponds created by excavating and/or diking dry land to collect and retain water and which are used exclusively for such purposes as stock watering, irrigation, settling basins, or rice growing;
- Artificial reflecting or swimming pools or other small ornamental bodies of water created by excavating and/or diking dry land to retain water for primarily aesthetic purposes; and
- Waterfilled depressions created in dry land incidental to construction activity and for the purpose of obtaining fill, sand, or gravel unless and until the construction or excavation operation is abandoned and the resulting body of water meets the definition of waters of the United States.

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

The IDEM administers the Section 401 Water Quality Certification (WQC) Program.[3] Section 401 of the federal Clean Water Act (CWA) requires any applicant for a federal permit to conduct any activity that may result in a discharge of pollutants to water to first obtain a water quality certification from the state. The goal of the Section 401 WQC Program is to protect the water quality of all "Indiana waters" by fair, efficient, and timely review of applications, to require avoidance of impacts to water resources, minimization of impacts which are unavoidable, and mitigation of all remaining impacts to insure no net loss of wetlands and no degradation of water quality.

---

[2] U.S. Supreme Court decision in Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers (January 9, 2001). Title 33 CFR §328.3(a)(3), as clarified and applied to petitioner's solid waste disposal site pursuant to a rule protecting migratory bird habitat in intrastate waters not adjacent to navigable waters, exceeds the authority granted to respondents under the Clean Water Act.

[3] Information in this section was taken from the IDEM Office of Water Management Web Site at http://www.in.gov/idem/water/planbr/401/index.html, updated on April 4, 2003, at the date of this report.

Most of the applications for federal permits that trigger the need for WQC are Department of the Army permit applications. However, because both agencies have somewhat different authority/ jurisdiction, both agencies need to be contacted before any discharge to or activity in a wetland or other water body occurs. If the ACOE decides a federal permit is needed, then the person must obtain a Section 401 Water Quality Certification from IDEM. IDEM will review the proposed activity to determine if it will comply with Indiana law, including state water quality standards. IDEM will require the applicant to avoid impacts if possible, minimize any unavoidable impacts and provide compensatory mitigation for any remaining adverse impacts to wetlands and other waters. IDEM will deny water quality certification if the applicant cannot show that its discharge will comply with state law and may cause violations of water quality standards. As an example, IDEM may deny certification if the impact can be avoided or the applicant's proposed compensatory mitigation cannot offset adverse impacts to water quality. A person may not proceed with a project until he or she has received a certification (or other authorization) from IDEM.

If the ACOE determines that a federal permit is not needed under section 404 of the CWA, then another form of authorization from IDEM will probably be needed. This is likely to be the case for "isolated wetlands" where the ACOE has determined that it has no basis for federal jurisdiction. Again, because the federal government's jurisdiction is different from the state's, IDEM must be contacted to determine what, if any, state authorization is needed before an applicant may legally discharge pollutants (including fill material) to a wetland.

On February 1, 2002, IDEM published a new rule adding wetland water quality standards to the state water quality standards. They also proposed a new article to establish procedures and criteria for review of projects requiring either 401 WQC or a state surface water modification permit for isolated wetlands not subject to ACOE jurisdiction. The Water Pollution Control Board preliminarily adopted the 401 Water Quality Certification and Wetlands Water Quality Standards rule on February 13, 2002. Under the proposed Wetland Water Quality Standards, dune and swale complexes would be regulated as Tier II wetlands, which are considered high quality areas of special concern (327 IAC 2-1.8-4).

During this rulemaking process, IDEM developed an "interim regulatory process" for regulating isolated wetlands under their NPDES permitting program that regulates all "Waters" of the state. Under IC 13-11-2-265 Section 265(a) "Waters", for the purpose of water pollution and environmental regulation, means the accumulations of water, surface and underground, natural and artificial, public and private, or that part of accumulations of water with any part within or touching the borders of Indiana. Private ponds, off-stream ponds, reservoirs, or facilities built for reduction or control of pollution or cooling of water are not included in this definition unless discharges from the pond, reservoir or facility causes or threatens to cause water pollution.

WETLAND DETERMINATION METHODS

Wetland determinations are made following the methods given in the *Corps of Engineers Wetlands Delineation Manual* (1987). Under the delineation procedures in this manual, an area must exhibit characteristic wetland hydrology, hydric soils, and hydrophytic vegetation to be considered a wetland. If field investigation determines that any of the three parameters are not

met, the area usually does not qualify as wetland. Moreover, drainage ditches excavated in dry land are generally not considered jurisdictional waters of the United States by the ACOE of Engineers (preamble to 33 CFR Parts 320 through 330, *Federal Register* Vol. 56, No. 219, 41217).

As part of a delineation report, data forms and technical information are required by the ACOE, to document the three parameters for any area determined to be wetland. Data forms for wetlands identified at the subject property are provided in Appendix I. A brief description of the field methods used, a description of the three wetland parameters, and a commentary on floristic analysis are provided in Appendix II.

Plant species lists are compiled for each area identified, focusing on the plant communities within each identified wetland area. This accumulated floristic data is analyzed using the Floristic Quality Assessment (FQA) methodology, which is an assessment technique that was developed for a rapid quality evaluation of vegetation in a defined area. The software that applies the calculations for the FQA method was used to generate the species lists provided in this report. Technical plant names in these lists that appear in CAPITAL LETTERS are adventive species, considered non-native in the 22-county Chicago Region, which includes Lake County, Indiana. These species generally reduce the quality of native plant communities by excluding some native species and competing directly with others. A more detailed explanation of the Floristic Quality Assessment method is provided in Appendix II.

It should be noted that the initial site investigation was conducted outside the growing season (April to September). Thus, only plants with recognizable, persistent plant parts could be reliably identified. However, suitable remnant parts were available for adequate plant identification. Subsequently, supplemental growing season inventories were conducted on May 28, 2002, and September 3 and 4, 2003. During these follow-up floristic investigations, the potential for rare, threatened, or endangered species to inhabit the project area also was evaluated.

EXECUTIVE SUMMARY

Four wetlands were found within the 215-acre project area, totaling approximately 18.27 acres. These wetlands were dominated by low-quality vegetation, such as Common Reed (*Phragmites australis*), Purple Loosestrife (*Lythrum salicaria*), Reed Canary Grass (*Phalaris arundinacea*), and Narrow-leaved Cattail (*Typha angustifolia*), although some higher ranked species also were present in these wetlands. Areas described in this report follow an alphanumeric coding that indicates the Pilot Section on which the area discussed is located. Thus, Area 1 is Pilot Section 1, Area 2 is Pilot Section 2, and so on. Letters following the area number indicate either upland or wetland within an area. The findings at each of the Pilot Sections are summarized below.

J-Pit Green Space Site.

The J-Pit does not qualify as "waters of the United States" as it is a sand and gravel quarry that has not been abandoned and which is operated (pumped) by the City of Gary. In addition, it does not qualify as "waters" of the State of Indiana as it appears to qualify as one or more of the following: off-stream ponds, reservoir, or facility built for reduction or control of pollution or

cooling of water. In a letter dated June 20, 2003, ACOE (Detroit District) determined that the J-Pit or Green Space Site "...does not meet Corps criteria for regulation and is therefore, not within Federal Jurisdiction (File No. 90-145-129-2)." A copy of this jurisdictional determination is included in Appendix V of this report and is valid through through June 20, 2008, when it may be re-evaluated. However, this letter does not eliminate the need to contact IDEM for state permitting requirements. IDEM should be contacted well in advance of any proposed site modification activities.

Pilot Section 1. Pilot Section 1 does not contain any jurisdictional wetland areas; however, it does contain moderate to good quality native Black Oak (*Quercus velutina*) savanna on remnant sand dunes, which is a relatively rare habitat in Indiana. Therefore, a growing season botanical survey should be conducted in advance of any proposed site development to determine whether any Indiana State threatened or endangered plant species are present. No listed plant species have been found to date, but additional and more extensive surveys may be warranted based on the number and quality of species already known to be present to prevent later project delays.

Pilot Section 2. Area 2b is an approximately 0.10-acre emergent wetland located in the southwestern portion of Pilot Section 2, along the southern property boundary. Due to historic excavation and leveling of sand dunes that once occupied this section, no dune and swale features still exist on this parcel. The small wetland does not appear to be part of a remnant swale based on the lack of characteristic swale vegetation and an underdeveloped vegetative community. The closed depressional nature of Area 2b means this wetland is likely to be considered an isolated wetland not under ACOE jurisdiction.

Pilot Section 3. Area 3c is an approximately 4.91-acre emergent wetland located in the southern portion of Pilot Section 3. A 1.48-acre remnant Black Oak savanna (Area 3b) also is located on the southern portion of Section 3, south of the emergent wetland. The emergent wetland portion of the remnant dune and swale complex is likely to be considered isolated due to its closed depressional nature and lack of a surface water connection. No other dune features are located on Pilot Section 3 due to historic dune leveling.

Pilot Section 4. Area 4b is an approximately 12.40-acre emergent wetland located in the southern part of Pilot Section 4 (Exhibit V). An emergent swale, located between two dunes, is directly connected to a much larger wetland located south of the dune and swale complex. This larger emergent wetland is likely an old swale that was expanded during the construction of the residential subdivision located south of Pilot Section 4. These wetlands appear to be isolated in nature. This large emergent wetland is partially surrounded by Black Oak savanna, making it the largest remnant dune and swale complex identified on this site. The size of the dune and swale complex is approximately 18.00 acres, which encompasses the southern portions of Pilot Section 4. This limits of this portion of the site is defined by a chain-link fence that traverses the property at its mid-section. The northern portion of Section 4 contains leveled dunes and a sand borrow pit, but no intact dune and swale features. Although initially inconclusive, a re-evaluation of the sand pit on September 3, 2003, resulted in the addition of 0.86 acre of wetland (Area 4c) to Pilot Section 4. The combined wetland acreage for Areas 4b and 4c equals 13.26 acres. These wetlands appear to be isolated, but because of their association with a dune and swale habitat complex they may be under Indiana DEM jurisdiction.

Table 1. Wetland Summary Table for the J-PIT Redevelopment Project.

Wetland	Acreage (on-site)	Off-site Acreage	Habitat Type*	Native Mean Conservatism (NMC)**	Floristic Quality Index (FQI)**	Adjacent?
Area 2b	0.10	--	PFO1C	2.8	16.6	N
Area 3c	4.91	--	PEMC	4.1	31.9	N
Area 4b	12.4	--	PEMC	4.8	42.3	N
Area 4c	0.86	--	PEMA	3.7	20.5	N
Total Wetland	18.27	0.00				

* Based on the NWI wetland classification scheme. See Cowardin et al. (1979) for more information.

** Based on the Floristic Quality Assessment (FQA) methodology in *Plants of the Chicago Region* (Swink and Wilhelm, 1994).

RESULTS OF THE FIELD INVESTIGATION

J-PIT GREEN SPACE SITE

No data points taken

The J-Pit consists of an approximately 114.00-acre sand and gravel quarry that is maintained by pumping. Approximately thirty percent of the quarry is vegetated, while the remaining seventy percent consists of open water. Common Reed is the dominant plant species throughout the vegetated portions of the quarry, but several other plant species were observed in limited abundance and distribution. These species are Narrow-leaved Cattail, Purple Loosestrife, Great Bulrush (*Scirpus validus*), Chairmaker's Rush (*Scirpus pungens*), Cocklebur (*Xanthium strumarium*), and Torrey's Rush (*Juncus torreyi*).

Most of the open water portion of the quarry is inundated with a few inches of standing water (ranging from 1 to 5 inches), but several deeper areas appear to have been excavated to provide positive drainage within the quarry. Since the J-Pit is actively maintained, and it lacks true soil structure, it is not a jurisdictional wetland. A jurisdictional determination was first conducted by the ACOE in 1994. The ACOE determined then that the J-Pit was not a jurisdictional wetland or waters of the United States. Because jurisdictional determinations expire after five years, a request for an updated determination was made early in 2003. The South Bend field office of the ACOE (Detroit District) reaffirmed that the J-Pit is not a jurisdictional wetland or Waters of The U.S. in a letter dated June 20, 2003 (Appendix V). Thus, modification of the J-pit does not require a permit from the ACOE, although state and local permits may be applicable.

PILOT SECTION 1

Area 1 - Upland

Data Points 1 Through 4

Area 1 consists of the entire 15-acre Pilot Section I (Exhibit V) (Photos 1 through 4)). The majority of Pilot Section 1 is remnant dune with a Black Oak savanna plant community; however, a residential structure and auto repair shop also is located on this parcel. No wetlands or remnant swales were identified as occurring on Pilot Section 1 during this site investigation. The dominant plant species at this site are Black Oak, Tartarian Honeysuckle (*Lonicera tatarica*), Sassafras (*Sassafras albidum*), Hairy Sweet Cicely (*Osmorhiza claytonii*), Clustered Black Snakeroot (*Sanicula gregaria*), Creeping Charlie (*Glechoma hederacea*), Black Cherry (*Prunus serotina*), Riverbank Grape (*Vitis riparia*), Prickly Wild Gooseberry (*Ribes cynosbati*), and Prickly Lettuce (*Lactuca serriola*). Less than 50% of these species are hydrophytic, thereby failing the vegetation criterion.

Floristic diversity of the plant community is composed primarily of high quality species (Native Mean Coefficient of Conservatism (NMC) = 4.10, Native Floristic Quality Index (FQI) = 46.90), despite the past disturbances. The floristic quality calculations and a plant species inventory for Area 1 are provided below.

FLORISTIC QUALITY DATA	Native	130	78.8%	Adventive	35	21.2%
130 NATIVE SPECIES	Tree	14	8.5%	Tree	5	3.0%
165 Total Species	Shrub	17	10.3%	Shrub	5	3.0%
4.1 NATIVE MEAN C	W-Vine	4	2.4%	W-Vine	0	0.0%
3.2 W/Adventives	H-Vine	0	0.0%	H-Vine	0	0.0%
46.9 NATIVE FQI	P-Forb	68	41.2%	P-Forb	9	5.5%
41.6 W/Adventives	B-Forb	6	3.6%	B-Forb	9	5.5%
1.8 NATIVE MEAN W	A-Forb	3	1.8%	A-Forb	4	2.4%
2.2 W/Adventives	P-Grass	10	6.1%	P-Grass	0	0.0%
AVG: Fac. Upland (+)	A-Grass	1	0.6%	A-Grass	3	1.8%
	P-Sedge	4	2.4%	P-Sedge	0	0.0%
	A-Sedge	0	0.0%	A-Sedge	0	0.0%
	Cryptogam	3	1.8%			

ACRONYM	C	SCIENTIFIC NAME	W	WETNESS	PHYSIOGNOMY	COMMON NAME
ACENEG	0	Acer negundo	-2	FACW-	Nt Tree	BOX ELDER
ACESAU	3	Acer saccharum	3	FACU	Nt Tree	SUGAR MAPLE
AGRGRY	2	Agrimonia gryposepala	2	FACU+	Nt P-Forb	TALL AGRIMONY
AGRPUB	5	Agrimonia pubescens	5	UPL	Nt P-Forb	SOFT AGRIMONY
AILALT	0	AILANTHUS ALTISSIMA	5	UPL	Ad Tree	TREE OF HEAVEN
AMEARB	8	Amelanchier arborea	3	FACU	Nt Tree	SERVICEBERRY
AMMBRE	7	Ammophila breviligulata	5	UPL	Nt P-Grass	MARRAM GRASS
ANDSCO	5	Andropogon scoparius	4	FACU-	Nt P-Grass	LITTLE BLUESTEM GRASS
ANECYL	6	Anemone cylindrica	5	UPL	Nt P-Forb	THIMBLEWEED
ANEQUI	7	Anemone quinquefolia	5	[UPL]	Nt P-Forb	WOOD ANEMONE
ANETHA	7	Anemonella thalictroides	5	UPL	Nt P-Forb	RUE ANEMONE
ANTPLA	3	Antennaria plantaginifolia	5	UPL	Nt P-Forb	PUSSY TOES
APOSIB	2	Apocynum sibiricum	-1	FAC+	Nt P-Forb	PRAIRIE INDIAN HEMP
AQUCAN	6	Aquilegia canadensis	1	FAC-	Nt P-Forb	WILD COLUMBINE
ARALYR	5	Arabis lyrata	4	FACU-	Nt B-Forb	SAND CRESS
ARANUD	8	Aralia nudicaulis	3	FACU	Nt Shrub	WILD SARSAPARILLA
ARTCAU	5	Artemisia caudata	5	UPL	Nt B-Forb	BEACH WORMWOOD
ASCSYR	0	Asclepias syriaca	5	UPL	Nt P-Forb	COMMON MILKWEED
ASPOFF	0	ASPARAGUS OFFICINALIS	3	FACU	Ad P-Forb	ASPARAGUS
ASTDUM	5	Aster dumosus	-1	FAC+	Nt P-Forb	RICE-BUTTON ASTER
ASTLAE	9	Aster laevis	5	UPL	Nt P-Forb	SMOOTH BLUE ASTER
ASTLAT	4	Aster lateriflorus	-2	FACW-	Nt P-Forb	SIDE-FLOWERING ASTER
ASTNOV	4	Aster novae-angliae	-3	FACW	Nt P-Forb	NEW ENGLAND ASTER
ASTPIL	0	Aster pilosus	2	FACU+	Nt P-Forb	HAIRY ASTER
ASTPRA	9	Aster praealtus	-5	[OBL]	Nt P-Forb	WILLOW ASTER
ASTSAS	5	Aster sagittifolius	5	UPL	Nt P-Forb	ARROW-LEAVED ASTER
ASTSIS	3	Aster simplex	-5	OBL	Nt P-Forb	PANICLED ASTER

ASTUMB	9	Aster umbellatus	-3	FACW	Nt P-Forb	FLAT-TOP ASTER
BARVUL	0	BARBAREA VULGARIS	0	FAC	Ad B-Forb	YELLOW ROCKET
BROJAP	0	BROMUS JAPONICUS	3	FACU	Ad A-Grass	JAPANESE CHESS
BROTEC	0	BROMUS TECTORUM	5	UPL	Ad A-Grass	DOWNY BROME
CALCAN	3	Calamagrostis canadensis	-5	OBL	Nt P-Grass	BLUE JOINT GRASS
CARPEN	4	Cardamine pensylvanica	-4	FACW+	Nt B-Forb	PENNSYLVANIA BITTER CRESS
CXMUHL	5	Carex muhlenbergii	5	UPL	Nt P-Sedge	SAND BRACTED SEDGE
CXPELL	4	Carex pellita	-5	OBL	Nt P-Sedge	BROAD-LEAVED WOOLLY SEDGE
CXPENS	5	Carex pensylvanica	5	UPL	Nt P-Sedge	COMMON OAK SEDGE
CXSICC	10	Carex siccata	-5	OBL	Nt P-Sedge	RUNNING SAVANNA SEDGE
CATSPE	0	CATALPA SPECIOSA	3	FACU	Ad Tree	HARDY CATALPA
CELOCC	3	Celtis occidentalis	1	FAC-	Nt Tree	HACKBERRY
CERNUT	0	Cerastium nutans	2	FACU+	Nt A-Forb	NODDING CHICKWEED
CICINT	0	CICHORIUM INTYBUS	5	UPL	Ad P-Forb	CHICORY
CINARU	5	Cinna arundinacea	-3	FACW	Nt P-Grass	COMMON WOOD REED
CIRLUC	1	Circaea l. canadensis	3	FACU	Nt P-Forb	ENCHANTER'S NIGHTSHADE
CIRDIS	2	Cirsium discolor	5	UPL	Nt B-Forb	PASTURE THISTLE
COMUMB	7	Comandra umbellata	3	FACU	Nt P-Forb	FALSE TOADFLAX
CONSEP	1	Convolvulus sepium	0	FAC	Nt P-Forb	HEDGE BINDWEED
CORLAN	5	Coreopsis lanceolata	3	FACU	Nt P-Forb	SAND COREOPSIS
CORPAL	6	Coreopsis palmata	5	UPL	Nt P-Forb	PRAIRIE COREOPSIS
CORTRP	5	Coreopsis tripteris	0	FAC	Nt P-Forb	TALL COREOPSIS
CORRAC	1	Cornus racemosa	-2	FACW-	Nt Shrub	GRAY DOGWOOD
CORSTO	6	Cornus stolonifera	-3	FACW	Nt Shrub	RED-OSIER DOGWOOD
CRYCAN	2	Cryptotaenia canadensis	0	FAC	Nt P-Forb	HONEWORT
DAUCAR	0	DAUCUS CAROTA	5	UPL	Ad B-Forb	QUEEN ANNE'S LACE
DESGLU	5	Desmodium glutinosum	5	UPL	Nt P-Forb	POINTED TICK TREFOIL
DIPLAC	0	DIPSACUS LACINIATUS	5	UPL	Ad B-Forb	CUT-LEAVED TEASEL
ELYCAN	4	Elymus canadensis	1	FAC-	Nt P-Grass	CANADA WILD RYE
EQUHYE	3	Equisetum hyemale	-2	FACW-	Cryptogam	TALL SCOURING RUSH
ERASPE	3	Eragrostis spectabilis	5	UPL	Nt P-Grass	PURPLE LOVE GRASS
ERIANS	0	Erigeron annuus	1	FAC-	Nt B-Forb	ANNUAL FLEABANE
ERICAN	0	Erigeron canadensis	1	FAC-	Nt A-Forb	HORSEWEED
ERIPHI	4	Erigeron philadelphicus	-3	FACW	Nt P-Forb	MARSH FLEABANE
EUOEUR	0	EUONYMUS EUROPAEUS	5	UPL	Ad Shrub	EUROPEAN SPINDLE TREE
EUOOBO	7	Euonymus obovatus	5	UPL	Nt Shrub	RUNNING STRAWBERRY BUSH
EUPALT	0	Eupatorium altissimum	3	[FACU]	Nt P-Forb	TALL BONESET
EUPPUR	7	Eupatorium purpureum	5	UPL	Nt P-Forb	PURPLE JOE PYE WEED
EUPRUG	4	Eupatorium rugosum	5	UPL	Nt P-Forb	WHITE SNAKEROOT
EUPSEM	0	Eupatorium serotinum	-1	FAC+	Nt P-Forb	LATE BONESET
EUPCOR	2	Euphorbia corollata	5	UPL	Nt P-Forb	FLOWERING SPURGE
FRAVEA	8	Fragaria vesca americana	5	UPL	Nt P-Forb	HILLSIDE STRAWBERRY
FRAVIR	1	Fragaria virginiana	1	FAC-	Nt P-Forb	WILD STRAWBERRY
FRAPES	1	Fraxinus pen. subintegerrima	0	FAC	Nt Tree	GREEN ASH
GALCIH	7	Galium c. hypomalacum	5	[UPL]	Nt P-Forb	HAIRY WILD LICORICE
GALPIL	10	Galium pilosum	5	UPL	Nt P-Forb	HAIRY BEDSTRAW
GERMAC	4	Geranium maculatum	5	[UPL]	Nt P-Forb	WILD GERANIUM
GEUCAN	1	Geum canadense	0	FAC	Nt P-Forb	WOOD AVENS
GLEHED	0	GLECHOMA HEDERACEA	3	FACU	Ad P-Forb	CREEPING CHARLIE
GLETRI	2	Gleditsia triacanthos	0	FAC	Nt Tree	HONEY LOCUST
HAMVIR	8	Hamamelis virginiana	3	FACU	Nt Shrub	WITCH HAZEL
HELDIV	5	Helianthus divaricatus	5	UPL	Nt P-Forb	WOODLAND SUNFLOWER
IRIFLA	0	IRIS FLAVESCENS	5	UPL	Ad P-Forb	PALE YELLOW IRIS
LAMPUR	0	LAMIUM PURPUREUM	5	UPL	Ad A-Forb	PURPLE DEAD NETTLE
LEOCAR	0	LEONURUS CARDIACA	5	UPL	Ad P-Forb	MOTHERWORT
LEPCAM	0	LEPIDIUM CAMPESTRE	5	UPL	Ad B-Forb	FIELD CRESS
LESCAP	4	Lespedeza capitata	3	FACU	Nt P-Forb	ROUND-HEADED BUSH CLOVER
LILMIC	6	Lilium michiganense	-1	FAC+	Nt P-Forb	TURK'S CAP LILY
LITCRO	8	Lithospermum croceum	5	UPL	Nt P-Forb	HAIRY PUCCOON
LONMAA	0	LONICERA MAACKII	5	UPL	Ad Shrub	AMUR HONEYSUCKLE
LONTAT	0	LONICERA TATARICA	5	[UPL]	Ad Shrub	TARTARIAN HONEYSUCKLE
LUPPEO	7	Lupinus p. occidentalis	5	UPL	Nt P-Forb	WILD LUPINE
LYCALB	0	LYCHNIS ALBA	5	UPL	Ad A-Forb	WHITE CAMPION
MAICAI	8	Maianthemum c. interius	5	[UPL]	Nt P-Forb	Maianthemum c. interius
MALNEG	0	MALVA NEGLECTA	5	UPL	Ad B-Forb	COMMON MALLOW
MELLOF	0	MELILOTUS OFFICINALIS	3	FACU	Ad B-Forb	YELLOW SWEET CLOVER
MONFIS	4	Monarda fistulosa	3	FACU	Nt P-Forb	WILD BERGAMOT
MONPUN	5	Monarda punctata	5	UPL	Nt P-Forb	HORSE MINT
MORALB	0	MORUS ALBA	0	FAC	Ad Tree	WHITE MULBERRY
NEPCAT	0	NEPETA CATARIA	1	FAC-	Ad P-Forb	CATNIP
OENBIE	0	Oenothera biennis	3	FACU	Nt B-Forb	COMMON EVENING PRIMROSE
OSMCLO	3	Osmorhiza claytonii	4	FACU-	Nt P-Forb	HAIRY SWEET CICELY
OSMRES	8	Osmunda r. spectabilis	-5	OBL	Cryptogam	ROYAL FERN

OXAEUR	0	Oxalis europaea	3	FACU	Nt P-Forb	TALL WOOD SORREL
PANCAP	1	Panicum capillare	0	FAC	Nt A-Grass	OLD WITCH GRASS
PANLAT	5	Panicum latifolium	3	FACU	Nt P-Grass	BROAD-LEAVED PANIC GRASS
PANVIR	5	Panicum virgatum	-1	FAC+	Nt P-Grass	SWITCH GRASS
PARQUI	2	Parthenocissus quinquefolia	1	FAC-	Nt W-Vine	VIRGINIA CREEPER
PHYAME	1	Phytolacca americana	1	FAC-	Nt P-Forb	POKEWEED
PODPEL	4	Podophyllum peltatum	3	FACU	Nt P-Forb	MAY APPLE
POLCAL	3	Polygonatum canaliculatum	3	FACU	Nt P-Forb	SMOOTH SOLOMON'S SEAL
POPDEL	2	Populus deltoides	-1	FAC+	Nt Tree	EASTERN COTTONWOOD
POPTRE	4	Populus tremuloides	0	FAC	Nt Tree	QUAKING ASPEN
POTSIS	4	Potentilla simplex	4	FACU-	Nt P-Forb	COMMON CINQUEFOIL
PREALB	5	Prenanthes alba	3	FACU	Nt P-Forb	LION'S FOOT
PREALT	8	Prenanthes altissima	3	FACU	Nt P-Forb	TALL WHITE LETTUCE
PRUSER	1	Prunus serotina	3	FACU	Nt Tree	WILD BLACK CHERRY
PRUVIR	3	Prunus virginiana	3	[FACU]	Nt Shrub	CHOKE CHERRY
PTEAQL	5	Pteridium a. latiusculum	3	FACU	Cryptogam	BRACKEN FERN
QUEALB	5	Quercus alba	0	FAC	Nt Tree	WHITE OAK
QUEMUH	8	Quercus muhlenbergii	5	UPL	Nt Tree	CHINQUAPIN OAK
QUEVEL	6	Quercus velutina	5	UPL	Nt Tree	BLACK OAK
RANABO	0	Ranunculus abortivus	-2	FACW-	Nt A-Forb	SMALL-FLOWERED BUTTERCUP
RHUGLA	1	Rhus glabra	5	UPL	Nt Shrub	SMOOTH SUMAC
RHURAD	2	Rhus radicans	-1	FAC+	Nt W-Vine	POISON IVY
RHUTYP	1	Rhus typhina	5	UPL	Nt Tree	STAGHORN SUMAC
RIBCYN	5	Ribes cynosbati	5	UPL	Nt Shrub	PRICKLY WILD GOOSEBERRY
ROBPSE	0	ROBINIA PSEUDOACACIA	4	FACU-	Ad Tree	BLACK LOCUST
ROSCAR	5	Rosa carolina	4	FACU-	Nt Shrub	PASTURE ROSE
ROSMUL	0	ROSA MULTIFLORA	3	FACU	Ad Shrub	MULTIFLORA ROSE
RUBALL	3	Rubus allegheniensis	2	FACU+	Nt Shrub	COMMON BLACKBERRY
RUBFLA	3	Rubus flagellaris	4	FACU-	Nt Shrub	COMMON DEWBERRY
RUBOCC	2	Rubus occidentalis	5	UPL	Nt Shrub	BLACK RASPBERRY
RUMCRI	0	RUMEX CRISPUS	-1	FAC+	Ad P-Forb	CURLY DOCK
SALDIS	2	Salix discolor	-3	FACW	Nt Shrub	PUSSY WILLOW
SAMCAN	1	Sambucus canadensis	-2	FACW-	Nt Shrub	ELDERBERRY
SANGRE	2	Sanicula gregaria	-1	FAC+	Nt P-Forb	CLUSTERED BLACK SNAKEROOT
SAPOFF	0	SAPONARIA OFFICINALIS	3	FACU	Ad P-Forb	BOUNCING BET
SASALB	3	Sassafras albidum	3	FACU	Nt Tree	SASSAFRAS
SENPAU	6	Senecio pauperculus	-1	FAC+	Nt P-Forb	BALSAM RAGWORT
SETGLA	0	SETARIA GLAUCA	0	FAC	Ad A-Grass	YELLOW FOXTAIL
SMIRAC	3	Smilacina racemosa	3	FACU	Nt P-Forb	FEATHERY FALSE SOLOMON'S SEAL
SMISTE	5	Smilacina stellata	1	FAC-	Nt P-Forb	STARRY FALSE SOLOMON'S SEAL
SMIECI	5	Smilax ecirrhata	5	UPL	Nt P-Forb	UPRIGHT CARRION FLOWER
SMITAH	5	Smilax t. hispida	5	UPL	Nt W-Vine	BRISTLY CAT BRIER
SOLALT	1	Solidago altissima	3	FACU	Nt P-Forb	TALL GOLDENROD
SOLGIG	4	Solidago gigantea	-3	FACW	Nt P-Forb	LATE GOLDENROD
SOLSPE	7	Solidago speciosa	5	UPL	Nt P-Forb	SHOWY GOLDENROD
SORNUT	5	Sorghastrum nutans	2	FACU+	Nt P-Grass	INDIAN GRASS
SPIALB	7	Spiraea alba	-4	FACW+	Nt Shrub	MEADOWSWEET
STAPAH	5	Stachys p. homotricha	-5	OBL	Nt P-Forb	WOUNDWORT
STEMED	0	STELLARIA MEDIA	3	FACU	Ad A-Forb	COMMON CHICKWEED
STISPA	7	Stipa spartea	5	UPL	Nt P-Grass	PORCUPINE GRASS
SYMORB	0	SYMPHORICARPOS ORBICULATUS	3	FACU	Ad Shrub	CORALBERRY
TAROFF	0	TARAXACUM OFFICINALE	3	FACU	Ad P-Forb	COMMON DANDELION
THLARV	0	THLASPI ARVENSE	5	UPL	Ad A-Forb	PENNY CRESS
TRAOHI	2	Tradescantia ohiensis	2	FACU+	Nt P-Forb	COMMON SPIDERWORT
TRADUB	0	TRAGOPOGON DUBIUS	5	UPL	Ad B-Forb	SAND GOAT'S BEARD
TRAPRA	0	TRAGOPOGON PRATENSIS	5	UPL	Ad B-Forb	COMMON GOAT'S BEARD
ULMPUM	0	ULMUS PUMILA	5	UPL	Ad Tree	SIBERIAN ELM
VERTHA	0	VERBASCUM THAPSUS	5	UPL	Ad B-Forb	COMMON MULLEIN
VERHAS	4	Verbena hastata	-4	FACW+	Nt P-Forb	BLUE VERVAIN
VERSTR	4	Verbena stricta	5	UPL	Nt P-Forb	HOARY VERVAIN
VERURU	5	Verbena urticifolia	5	UPL	Nt P-Forb	HAIRY WHITE VERVAIN
VIBRAF	5	Viburnum rafinesquianum	5	UPL	Nt Shrub	DOWNY ARROW-WOOD
VITRIP	2	Vitis riparia	-2	FACW-	Nt W-Vine	RIVERBANK GRAPE
XANAME	3	Xanthoxylum americanum	5	UPL	Nt Shrub	PRICKLY ASH
ZIZAUR	7	Zizia aurea	-1	FAC+	Nt P-Forb	GOLDEN ALEXANDERS

No primary or secondary indicators of wetland hydrology were observed at any of the data points within Pilot Section 1, and all locations failed the hydrology criterion.

The soil profile at Data Point 1 was classified as Morocco loamy fine sand. An A horizon of very dark grayish brown (10YR 3/2) sand was found from 0 to 3 inches in depth. Below this, a Bw1 horizon of light brownish gray (10YR 6/2) sand was observed from 3 to 5 inches in depth. A Bw2 horizon of pale brown (10YR 6/3) sand was found from 5 to 10 inches in depth. This horizon contained common faint light yellowish brown (10YR 6/4) redoximorphic features. Finally, a Bw3 horizon of very pale brown (10YR 7/3) sand was observed from 10 to 34 inches in depth. This horizon contained a few distinct dark yellowish brown (10YR 4/6) redoximorphic features.

The soil profiles at Data Points 2 and 4 were classified as Morocco loamy fine sand, taxadjunct. The profile description from Data Point 2 is used here as representative for a typical Morocco, taxadjunct profile within Pilot Section 1:

An A horizon of black (10YR 2/1) loam was found from 0 to 5 inches in depth. Below this, a Bw1 horizon of strong brown (7.5YR 4/6) sand was observed from 5 to 7 inches in depth. A Bw2 horizon of yellowish brown (10YR 5/4) sand was found from 7 to 21 inches in depth. This horizon contained common distinct dark yellowish brown (10YR 4/6) redoximorphic features. Finally, a BC horizon of very pale brown (10YR 7/3) sand was found below a depth of 21 inches.

The soil profile at Data Point 3 was classified as Oakville fine sand. An A horizon of black (10YR 2/1) loamy sand was found from 0 to 3 inches in depth. Below this, a Bw horizon of brownish yellow (10YR 6/6) sand was observed from 3 to 25 inches in depth. Finally, a BC horizon of light yellowish brown (10YR 6/4) sand was found from 25 to 28 inches in depth.

None of the soil profiles within Pilot Section 1 exhibited hydric soil field indicators, and all locations failed the soils criterion.

None of the three wetland criteria was satisfied at any location within Pilot Section 1, and no location within Pilot Section 1 qualifies as wetland. However, Pilot Section 1 is remnant Black Oak savanna, the upland portion of a remnant dune and dry swale complex, so this area may be under Indiana Department of Natural Resources jurisdiction as a potentially protected habitat type. We recommend further consultation with this agency during the early design stages of any proposed projects that include modification of this site.

PILOT SECTION 2

Area 2a - Upland
Data Points 5 and 7

Area 2a consists of an undeveloped platted subdivision, a junkyard, and a used car business located within the boundaries of the 23-acre Pilot Section 2 (Exhibit V; Photos 7, 8 and 10). The majority of Area 2a is a platted subdivision that was never developed beyond road and water main installation, as indicated by blacktopped streets and fire hydrants. Thus, no structures are present except as noted above, and no remnant foundations or other building infrastructure was observed. The dominant plant species in Area 2a are Kentucky Bluegrass (*Poa pratensis*), Quack Grass (*Agropyron repens*), Knee Grass (*Panicum dichotomiflorum*), Siberian Elm (*Ulmus pumila*), Marram Grass (*Ammophila breviligulata*), Black Cherry, Hairy Sweet Cicely, Box Elder

(*Acer negundo*), Garlic Mustard (*Alliaria petiolata*), Common Blackberry (*Rubus allegheniensis*), and Amur Honeysuckle (*Lonicera maackii*). Less than 50% of the dominant species are hydrophytic, thereby failing the vegetation criterion.

The floristic diversity of this plant community is moderate in quality (NMC = 2.9, FQI = 19.50), although the NMC and Native FQI represent a higher quality community. The presence of a few higher quality species, many represented by a single individual, skews the floristic quality data resulting in an appearance of higher floristic quality than actual conditions. This is further substantiated by the fact that thirty-one of the seventy-eight species (40%) identified during the investigation of this parcel are non-native and dominate a majority of Section 2 in terms of abundance and cover, thus indicating a higher level of disruption than revealed by the floristic quality indices. The floristic quality calculations and plant species inventory for Area 2a are provided below.

FLORISTIC QUALITY DATA						
47 NATIVE SPECIES	Native	47	60.3%	Adventive	31	39.7%
78 Total Species	Tree	5	6.4%	Tree	3	3.8%
2.9 NATIVE MEAN C	Shrub	5	6.4%	Shrub	3	3.8%
1.7 W/Adventives	W-Vine	0	0.0%	W-Vine	0	0.0%
19.5 NATIVE FQI	H-Vine	0	0.0%	H-Vine	0	0.0%
15.2 W/Adventives	P-Forb	20	25.6%	P-Forb	7	9.0%
1.9 NATIVE MEAN W	B-Forb	3	3.8%	B-Forb	7	9.0%
2.3 W/Adventives	A-Forb	5	6.4%	A-Forb	2	2.6%
AVG: Fac. Upland (+)	P-Grass	6	7.7%	P-Grass	5	6.4%
	A-Grass	2	2.6%	A-Grass	4	5.1%
	P-Sedge	0	0.0%	P-Sedge	0	0.0%
	A-Sedge	0	0.0%	A-Sedge	0	0.0%
	Cryptogam	1	1.3%			

ACRONYM	C	SCIENTIFIC NAME	W	WETNESS	PHYSIOGNOMY	COMMON NAME
ACENEG	0	Acer negundo	-2	FACW-	Nt Tree	BOX ELDER
ACESAI	0	Acer saccharinum	-3	FACW	Nt Tree	SILVER MAPLE
AGRGRY	2	Agrimonia gryposepala	2	FACU+	Nt P-Forb	TALL AGRIMONY
AGRREP	0	AGROPYRON REPENS	3	FACU	Ad P-Grass	QUACK GRASS
AGRALA	0	AGROSTIS ALBA	-3	FACW	Ad P-Grass	REDTOP
ALLPET	0	ALLIARIA PETIOLATA	0	FAC	Ad B-Forb	GARLIC MUSTARD
ALLTRT	7	Allium tricoccum	3	FACU	Nt P-Forb	WILD LEEK
AMBARE	0	Ambrosia a. elatior	3	FACU	Nt A-Forb	COMMON RAGWEED
AMBTRI	0	Ambrosia trifida	-1	FAC+	Nt A-Forb	GIANT RAGWEED
AMMBRE	7	Ammophila breviligulata	5	UPL	Nt P-Grass	MARRAM GRASS
APOSIB	2	Apocynum sibiricum	-1	FAC+	Nt P-Forb	PRAIRIE INDIAN HEMP
ARCMIN	0	ARCTIUM MINUS	5	UPL	Ad B-Forb	COMMON BURDOCK
ARTCAU	5	Artemisia caudata	5	UPL	Nt B-Forb	BEACH WORMWOOD
ASCSYR	0	Asclepias syriaca	5	UPL	Nt P-Forb	COMMON MILKWEED
ASTDUM	5	Aster dumosus	-1	FAC+	Nt P-Forb	RICE-BUTTON ASTER
ASTERI	5	Aster ericoides	4	FACU-	Nt P-Forb	HEATH ASTER
ASTPIL	0	Aster pilosus	2	FACU+	Nt P-Forb	HAIRY ASTER
BROJAP	0	BROMUS JAPONICUS	3	FACU	Ad A-Grass	JAPANESE CHESS
BROTEC	0	BROMUS TECTORUM	5	UPL	Ad A-Grass	DOWNY BROME
CHEALB	0	CHENOPODIUM ALBUM	1	FAC-	Ad A-Forb	LAMB'S QUARTERS
DACGLO	0	DACTYLIS GLOMERATA	3	FACU	Ad P-Grass	ORCHARD GRASS
DAUCAR	0	DAUCUS CAROTA	5	UPL	Ad B-Forb	QUEEN ANNE'S LACE
ERASPE	3	Eragrostis spectabilis	5	UPL	Nt P-Grass	PURPLE LOVE GRASS
ERIANS	0	Erigeron annuus	1	FAC-	Nt B-Forb	ANNUAL FLEABANE
ERICAN	0	Erigeron canadensis	1	FAC-	Nt A-Forb	HORSEWEED
EUOOBO	7	Euonymus obovatus	5	UPL	Nt Shrub	RUNNING STRAWBERRY BUSH
EUPALT	0	Eupatorium altissimum	3	[FACU]	Nt P-Forb	TALL BONESET
FESELA	0	FESTUCA ELATIOR	2	FACU+	Ad P-Grass	TALL FESCUE
GALAPA	1	Galium aparine	3	FACU	Nt A-Forb	ANNUAL BEDSTRAW
HELDIV	5	Helianthus divaricatus	5	UPL	Nt P-Forb	WOODLAND SUNFLOWER
IRIFLA	0	IRIS FLAVESCENS	5	UPL	Ad P-Forb	PALE YELLOW IRIS
LEOCAR	0	LEONURUS CARDIACA	5	UPL	Ad P-Forb	MOTHERWORT
LEPCAM	0	LEPIDIUM CAMPESTRE	5	UPL	Ad B-Forb	FIELD CRESS
LESCAP	4	Lespedeza capitata	3	FACU	Nt P-Forb	ROUND-HEADED BUSH CLOVER
LONMAA	0	LONICERA MAACKII	5	UPL	Ad Shrub	AMUR HONEYSUCKLE
LUPPEO	7	Lupinus p. occidentalis	5	UPL	Nt P-Forb	WILD LUPINE

MALPUM	0	MALUS PUMILA	5	UPL	Ad Tree	APPLE
OENBIE	0	Oenothera biennis	3	FACU	Nt B-Forb	COMMON EVENING PRIMROSE
OSMCLO	3	Osmorhiza claytonii	4	FACU-	Nt P-Forb	HAIRY SWEET CICELY
PANCAP	1	Panicum capillare	0	FAC	Nt A-Grass	OLD WITCH GRASS
PANDII	0	Panicum dichotomiflorum	-2	FACW-	Nt A-Grass	KNEE GRASS
PANLAT	5	Panicum latifolium	3	FACU	Nt P-Grass	BROAD-LEAVED PANIC GRASS
PANVIR	5	Panicum virgatum	-1	FAC+	Nt P-Grass	SWITCH GRASS
PHYAME	1	Phytolacca americana	1	FAC-	Nt P-Forb	POKEWEED
PLALAN	0	PLANTAGO LANCEOLATA	0	FAC	Ad P-Forb	ENGLISH PLANTAIN
PLAMAJ	0	PLANTAGO MAJOR	-1	FAC+	Ad P-Forb	COMMON PLANTAIN
POAPRA	0	POA PRATENSIS	1	FAC-	Ad P-Grass	KENTUCKY BLUE GRASS
POLLAP	0	Polygonum lapathifolium	-4	FACW+	Nt A-Forb	HEARTSEASE
POPALB	0	POPULUS ALBA	5	UPL	Ad Tree	WHITE POPLAR
POPDEL	2	Populus deltoides	-1	FAC+	Nt Tree	EASTERN COTTONWOOD
PRUSER	1	Prunus serotina	3	FACU	Nt Tree	WILD BLACK CHERRY
PRUVIR	3	Prunus virginiana	3	[FACU]	Nt Shrub	CHOKE CHERRY
PTEAQL	5	Pteridium a. latiusculum	3	FACU	Cryptogam	BRACKEN FERN
QUEVEL	6	Quercus velutina	5	UPL	Nt Tree	BLACK OAK
RIBCYN	5	Ribes cynosbati	5	UPL	Nt Shrub	PRICKLY WILD GOOSEBERRY
ROSMUL	0	ROSA MULTIFLORA	3	FACU	Ad Shrub	MULTIFLORA ROSE
RUBALL	3	Rubus allegheniensis	2	FACU+	Nt Shrub	COMMON BLACKBERRY
RUBOCC	2	Rubus occidentalis	5	UPL	Nt Shrub	BLACK RASPBERRY
RUMCRI	0	RUMEX CRISPUS	-1	FAC+	Ad P-Forb	CURLY DOCK
SANGRE	2	Sanicula gregaria	-1	FAC+	Nt P-Forb	CLUSTERED BLACK SNAKEROOT
SAPOFF	0	SAPONARIA OFFICINALIS	3	FACU	Ad P-Forb	BOUNCING BET
SETFAB	0	SETARIA FABERI	2	FACU+	Ad A-Grass	GIANT FOXTAIL
SETGLA	0	SETARIA GLAUCA	0	FAC	Ad A-Grass	YELLOW FOXTAIL
SMIRAC	3	Smilacina racemosa	3	FACU	Nt P-Forb	FEATHERY FALSE SOLOMON'S SEAL
SMISTE	5	Smilacina stellata	1	FAC-	Nt P-Forb	STARRY FALSE SOLOMON'S SEAL
SOLALT	1	Solidago altissima	3	FACU	Nt P-Forb	TALL GOLDENROD
SOLSPE	7	Solidago speciosa	5	UPL	Nt P-Forb	SHOWY GOLDENROD
SORNUT	5	Sorghastrum nutans	2	FACU+	Nt P-Grass	INDIAN GRASS
SPAPEC	4	Spartina pectinata	-4	FACW+	Nt P-Grass	PRAIRIE CORD GRASS
TAROFF	0	TARAXACUM OFFICINALE	3	FACU	Ad P-Forb	COMMON DANDELION
TEUCAN	3	Teucrium canadense	-3	FACW	Nt P-Forb	GERMANDER
THLARV	0	THLASPI ARVENSE	5	UPL	Ad A-Forb	PENNY CRESS
TRAOHI	2	Tradescantia ohiensis	2	FACU+	Nt P-Forb	COMMON SPIDERWORT
TRADUB	0	TRAGOPOGON DUBIUS	5	UPL	Ad B-Forb	SAND GOAT'S BEARD
TRAPRA	0	TRAGOPOGON PRATENSIS	5	UPL	Ad B-Forb	COMMON GOAT'S BEARD
ULMPUM	0	ULMUS PUMILA	5	UPL	Ad Tree	SIBERIAN ELM
VERTHA	0	VERBASCUM THAPSUS	5	UPL	Ad B-Forb	COMMON MULLEIN
VIBOPU	0	VIBURNUM OPULUS	3	[FACU]	Ad Shrub	EUROPEAN HIGHBUSH CRANBERRY

No primary or secondary indicators of wetland hydrology were observed at Data Points 5 and 7, failing the hydrology criterion.

The soil profile at Data Point 5 was classified as Made Land, Orthents. A mixed fill horizon of pale brown (10YR 6/3) sand was found from 0 to 9 inches in depth. This horizon contained a few distinct dark yellowish brown (10YR 4/6) redoximorphic features and some decomposed organic material incorporated throughout. Below this, another mixed fill horizon of very pale brown (10YR 7/3) sand was observed from 9 to 27 inches in depth. This horizon contained occasional stratified thin bands of darker colored soil.

The soil profile at Data Point 7 was classified as Granby loamy fine sand. An A horizon of black (10YR 2/1) sandy loam was found from 0 to 13 inches in depth. This horizon contained a few prominent dark brown (7.5YR 3/4) redoximorphic features. Below this, a Bg1 horizon of light brownish gray (10YR 6/2) sand was observed from 13 to 32 inches in depth. This horizon contained common distinct dark yellowish brown (10YR 4/6) redoximorphic features, and some mixing between this horizon and the A horizon above was observed. Finally, a Bg2 horizon of pale brown (10YR 6/3) sand was found from 32 to 40 inches in depth. This horizon contained common distinct yellowish brown (10YR 5/6) and dark yellowish brown (10YR 4/6) redoximorphic features.

The soil profile at Data Point 5 does not exhibit any hydric soil field indicators and fails the soils criterion. The soil profile at Data Point 7, while not exhibiting any hydric soil field indicators, is classified taxonomically as being poorly drained, and the presence of redoximorphic features throughout the profile and gray subsoil colors indicates that the upper portion of the profile is saturated for at least two weeks during the growing season, thereby satisfying the soils criterion. All locations within Area 2a fail at least one of the three wetland criteria, and Area 2a does not qualify as wetland. No dune and swale features are present on Pilot Section 2 because of historic grading or sand mining activities.

Area 2b – Isolated Wooded Wetland
Data Point 6

Area 2b is an approximately 0.10-acre wooded wetland located along the southern property boundary near the southwestern corner of Pilot Section 2 (Exhibit V; Photo 9). The dominant plant species are Hairy Sweet Cicely, Common Blackberry, Clustered Black Snakeroot, Riverbank Grape, Eastern Cottonwood (*Populus deltoides*), Quaking Aspen (*Populus tremuloides*), Sawtooth Sunflower (*Helianthus grosseserratus*), and Tall Goldenrod (*Solidago altissima*). More than 50% of these dominant plant species are hydrophytic, so the vegetation criterion is satisfied.

The floristic diversity of the wetland plant community is of moderate quality (NMC = 2.80, FQI = 16.60). Due to its small size, the wetland provides limited wetland function at a low level. The floristic quality calculations and plant species inventory for Area 2b are provided below.

FLORISTIC QUALITY DATA						
35 NATIVE SPECIES	Native	35	81.4%	Adventive	8	18.6%
43 Total Species	Tree	6	14.0%	Tree	1	2.3%
2.8 NATIVE MEAN C	Shrub	4	9.3%	Shrub	2	4.7%
2.3 W/Adventives	W-Vine	1	2.3%	W-Vine	1	2.3%
16.6 NATIVE FQI	H-Vine	0	0.0%	H-Vine	0	0.0%
14.9 W/Adventives	P-Forb	18	41.9%	P-Forb	2	4.7%
-0.0 NATIVE MEAN W	B-Forb	2	4.7%	B-Forb	2	4.7%
0.3 W/Adventives	A-Forb	2	4.7%	A-Forb	0	0.0%
AVG: Facultative	P-Grass	0	0.0%	P-Grass	0	0.0%
	A-Grass	0	0.0%	A-Grass	0	0.0%
	P-Sedge	1	2.3%	P-Sedge	0	0.0%
	A-Sedge	0	0.0%	A-Sedge	0	0.0%
	Cryptogam	1	2.3%			

ACRONYM	C	SCIENTIFIC NAME	W	WETNESS	PHYSIOGNOMY	COMMON NAME
ACENEG	0	Acer negundo	-2	FACW-	Nt Tree	BOX ELDER
ACESAI	0	Acer saccharinum	-3	FACW	Nt Tree	SILVER MAPLE
ACESAU	3	Acer saccharum	3	FACU	Nt Tree	SUGAR MAPLE
AGRGRY	2	Agrimonia gryposepala	2	FACU+	Nt P-Forb	TALL AGRIMONY
ALLPET	0	ALLIARIA PETIOLATA	0	FAC	Ad B-Forb	GARLIC MUSTARD
AMBTRI	0	Ambrosia trifida	-1	FAC+	Nt A-Forb	GIANT RAGWEED
ASTDUM	5	Aster dumosus	-1	FAC+	Nt P-Forb	RICE-BUTTON ASTER
ASTLAT	4	Aster lateriflorus	-2	FACW-	Nt P-Forb	SIDE-FLOWERING ASTER
ASTPRA	9	Aster praealtus	-5	[OBL]	Nt P-Forb	WILLOW ASTER
BOTVIR	6	Botrychium virginianum	3	FACU	Cryptogam	RATTLESNAKE FERN
CXATHE	5	Carex atherodes	-5	OBL	Nt P-Sedge	HAIRY-LEAVED LAKE SEDGE
CIRLUC	1	Circaea l. canadensis	3	FACU	Nt P-Forb	ENCHANTER'S NIGHTSHADE
CIRDIS	2	Cirsium discolor	5	UPL	Nt B-Forb	PASTURE THISTLE
GEUCAN	1	Geum canadense	0	FAC	Nt P-Forb	WOOD AVENS
GEULAT	2	Geum l. trichocarpum	-3	FACW	Nt P-Forb	ROUGH AVENS
GLEHED	0	GLECHOMA HEDERACEA	3	FACU	Ad P-Forb	CREEPING CHARLIE
HACVIR	0	Hackelia virginiana	1	FAC-	Nt B-Forb	STICKSEED
HELDIV	5	Helianthus divaricatus	5	UPL	Nt P-Forb	WOODLAND SUNFLOWER
HELGRO	2	Helianthus grosseserratus	-2	FACW-	Nt P-Forb	SAWTOOTH SUNFLOWER

HEMFUL	0	HEMEROCALLIS FULVA	5	UPL	Ad P-Forb	ORANGE DAY LILY
IRIVIS	5	Iris v. shrevei	-5	OBL	Nt P-Forb	BLUE FLAG
LACSER	0	LACTUCA SERRIOLA	0	FAC	Ad B-Forb	PRICKLY LETTUCE
LONMAA	0	LONICERA MAACKII	5	UPL	Ad Shrub	AMUR HONEYSUCKLE
MORALB	0	MORUS ALBA	0	FAC	Ad Tree	WHITE MULBERRY
OSMCLO	3	Osmorhiza claytonii	4	FACU-	Nt P-Forb	HAIRY SWEET CICELY
PHYAME	1	Phytolacca americana	1	FAC-	Nt P-Forb	POKEWEED
POLCAL	3	Polygonatum canaliculatum	3	FACU	Nt P-Forb	SMOOTH SOLOMON'S SEAL
POLLAP	0	Polygonum lapathifolium	-4	FACW+	Nt A-Forb	HEARTSEASE
POPDEL	2	Populus deltoides	-1	FAC+	Nt Tree	EASTERN COTTONWOOD
POPTRE	4	Populus tremuloides	0	FAC	Nt Tree	QUAKING ASPEN
PRUSER	1	Prunus serotina	3	FACU	Nt Tree	WILD BLACK CHERRY
RIBAME	7	Ribes americanum	-3	FACW	Nt Shrub	WILD BLACK CURRANT
RUBALL	3	Rubus allegheniensis	2	FACU+	Nt Shrub	COMMON BLACKBERRY
RUBOCC	2	Rubus occidentalis	5	UPL	Nt Shrub	BLACK RASPBERRY
SAMCAN	1	Sambucus canadensis	-2	FACW-	Nt Shrub	ELDERBERRY
SANGRE	2	Sanicula gregaria	-1	FAC+	Nt P-Forb	CLUSTERED BLACK SNAKEROOT
SMIECI	5	Smilax ecirrhata	5	UPL	Nt P-Forb	UPRIGHT CARRION FLOWER
SOLDUL	0	SOLANUM DULCAMARA	0	FAC	Ad W-Vine	BITTERSWEET NIGHTSHADE
SOLALT	1	Solidago altissima	3	FACU	Nt P-Forb	TALL GOLDENROD
SOLGIG	4	Solidago gigantea	-3	FACW	Nt P-Forb	LATE GOLDENROD
STATEH	5	Stachys t. hispida	-4	FACW+	Nt P-Forb	MARSH HEDGE NETTLE
VIBOPU	0	VIBURNUM OPULUS	3	[FACU]	Ad Shrub	EUROPEAN HIGHBUSH CRANBERRY
VITRIP	2	Vitis riparia	-2	FACW-	Nt W-Vine	RIVERBANK GRAPE

Primary and secondary indicators of wetland hydrology, such as a depressional landscape position and buttressed tree trunks, were observed within Area 2b, satisfying the hydrology criterion.

The soil profile at Data Point 6 was classified as Granby loamy fine sand. An A horizon of black (10YR 2/1) loamy sand was found from 0 to 11 inches in depth. Below this, a Bg horizon of light brownish gray (10YR 6/2) sand was observed from 11 to 21 inches in depth. This horizon contained common prominent dark yellowish brown (10YR 4/6) redoximorphic features. Finally, a C horizon of light yellowish brown (10YR 6/4) sand was found from 21 to 39 inches in depth. This horizon contained common distinct dark yellowish brown (10YR 4/6) redoximorphic features, and was stratified with layers of black (10YR 2/1) and light gray (10YR 7/1) colored soil material.

The soil profile at Data Point 6, while not exhibiting any hydric soil field indicators, is classified taxonomically as being poorly drained, and the presence of redoximorphic features throughout the profile and gray subsoil colors indicates that the upper portion of the profile is saturated for at least two weeks during the growing season, thereby satisfying the soils criterion.

All three wetland criteria are satisfied at Data Point 6, so Area 2b qualifies as a wetland. The location in a closed depression without a surface water connection indicates that Area 2b is an isolated wetland. In addition, the underdeveloped nature of the vegetative community indicates the recent formation of wetland at this location. Thus, Area 2b apparently is not a remnant swale, but a wetland that developed after the physical alteration of Pilot Section 2. Because the wetland appears to be isolated, it may not be under ACOE jurisdiction, but discharges to the wetland are likely to be regulated by the DEM and may require a permit.

PILOT SECTION 3

Area 3a – Upland
Data Points 18, 19 and 21

Area 3a consists of the upland portions of the 27-acre Pilot Section 3, which generally is a severely disturbed, but undeveloped parcel that includes a junkyard (Exhibit V; Photos 11 to 13 and 15 to 17). Most of the undeveloped portion of Area 3a is uniformly covered with a mix of debris, including discarded foundry material or slag and shredded plastic and rubber. Additionally, scattered debris piles are present in Area 3a. These debris piles appear to be refuse from building and street demolition, as evidenced by the bricks, concrete slabs, and asphalt visible on the surface. However, a highly degraded dry sand prairie has developed on a portion of leveled dune that likely covered the parcel at some time in the past. Several common prairie plant species were observed in this area, but overall the plant community is of low floristic quality (see FQA table below). Most of the dominant plant species in Area 3a are opportunistic, non-native species adapted to colonizing disturbed environments.

Examples of disturbed environments include areas that may have little or no topsoil, contain a buried soil, or where the soil is extremely compacted. Surface hydrology in these disturbed locations apparently prevents some plant species from successfully colonizing, but opportunistic species often thrive on the lack of competition. Consequently, many of the species that are able to survive these harsh conditions are also listed as being hydrophytic.

The dominant species are Purple Loosestrife Common Reed, Kentucky Blue Grass, White Snakeroot (*Eupatorium altissima*), Big Bluestem Grass (*Andropogon gerardii*), Pointed Tick Trefoil (*Desmodium glutinosum*), Eastern Cottonwood, Bushy Aster (*Aster dumosus*), Common Evening Primrose (*Oenothera biennis*), Queen Anne's Lace (*Daucus carota*), and Yarrow (*Achillea millefolium*). Less than 50% of the dominant species are hydrophytic at Data Points 19 and 21, thereby failing the vegetation criterion. Both of the dominant species are hydrophytic at Data Point 18 so the vegetation criterion is satisfied at this location. However, the remaining two criteria are not satisfied at Data Point 18, so this area is not a wetland.

Overall, the floristic diversity of the plant community is of low to moderate quality despite the high floristic quality values calculated for this area (NMC = 3.30, FQI = 24.30). Like Area 2a, a majority of Area 3a is dominated by low quality natives and non-native species. Again, the presence of a few higher quality natives skews the floristic data. Thus, Area 3a is of lower quality than the floristic data would seem to portray. The floristic quality calculations and plant species inventory are provided below.

FLORISTIC QUALITY DATA	Native	56	72.7%	Adventive	21	27.3%
56 NATIVE SPECIES	Tree	7	9.1%	Tree	1	1.3%
77 Total Species	Shrub	7	9.1%	Shrub	0	0.0%
3.3 NATIVE MEAN C	W-Vine	1	1.3%	W-Vine	0	0.0%
2.4 W/Adventives	H-Vine	0	0.0%	H-Vine	0	0.0%
24.3 NATIVE FQI	P-Forb	27	35.1%	P-Forb	6	7.8%
20.7 W/Adventives	B-Forb	2	2.6%	B-Forb	9	11.7%
1.9 NATIVE MEAN W	A-Forb	1	1.3%	A-Forb	2	2.6%
2.0 W/Adventives	P-Grass	6	7.8%	P-Grass	2	2.6%
AVG: Fac. Upland (+)	A-Grass	1	1.3%	A-Grass	1	1.3%
	P-Sedge	3	3.9%	P-Sedge	0	0.0%
	A-Sedge	0	0.0%	A-Sedge	0	0.0%
	Cryptogam	1	1.3%			

ACRONYM	C	SCIENTIFIC NAME	W	WETNESS	PHYSIOGNOMY	COMMON NAME
ACESAI	0	Acer saccharinum	-3	FACW	Nt Tree	SILVER MAPLE
ACHMIL	0	ACHILLEA MILLEFOLIUM	3	FACU	Ad P-Forb	YARROW
ANDGER	5	Andropogon gerardii	1	FAC-	Nt P-Grass	BIG BLUESTEM GRASS
ANDSCO	5	Andropogon scoparius	4	FACU-	Nt P-Grass	LITTLE BLUESTEM GRASS
AQUCAN	6	Aquilegia canadensis	1	FAC-	Nt P-Forb	WILD COLUMBINE
ARCMIN	0	ARCTIUM MINUS	5	UPL	Ad B-Forb	COMMON BURDOCK
ARTCAU	5	Artemisia caudata	5	UPL	Nt B-Forb	BEACH WORMWOOD
ASCSYR	0	Asclepias syriaca	5	UPL	Nt P-Forb	COMMON MILKWEED
ASTDUM	5	Aster dumosus	-1	FAC+	Nt P-Forb	RICE-BUTTON ASTER
ASTERI	5	Aster ericoides	4	FACU-	Nt P-Forb	HEATH ASTER
ASTPIL	0	Aster pilosus	2	FACU+	Nt P-Forb	HAIRY ASTER
ASTSIS	3	Aster simplex	-5	OBL	Nt P-Forb	PANICLED ASTER
BROJAP	0	BROMUS JAPONICUS	3	FACU	Ad A-Grass	JAPANESE CHESS
CXMUHL	5	Carex muhlenbergii	5	UPL	Nt P-Sedge	SAND BRACTED SEDGE
CXPENS	5	Carex pensylvanica	5	UPL	Nt P-Sedge	COMMON OAK SEDGE
CXVULP	2	Carex vulpinoidea	-5	OBL	Nt P-Sedge	BROWN FOX SEDGE
CENMAC	0	CENTAUREA MACULOSA	5	UPL	Ad B-Forb	SPOTTED KNAPWEED
DAUCAR	0	DAUCUS CAROTA	5	UPL	Ad B-Forb	QUEEN ANNE'S LACE
DESGLU	5	Desmodium glutinosum	5	UPL	Nt P-Forb	POINTED TICK TREFOIL
ERASPE	3	Eragrostis spectabilis	5	UPL	Nt P-Grass	PURPLE LOVE GRASS
ERICAN	0	Erigeron canadensis	1	FAC-	Nt A-Forb	HORSEWEED
EUPALT	0	Eupatorium altissimum	3	[FACU]	Nt P-Forb	TALL BONESET
EUPSEM	0	Eupatorium serotinum	-1	FAC+	Nt P-Forb	LATE BONESET
EUPCOR	2	Euphorbia corollata	5	UPL	Nt P-Forb	FLOWERING SPURGE
FRAVIR	1	Fragaria virginiana	1	FAC-	Nt P-Forb	WILD STRAWBERRY
GALPIL	10	Galium pilosum	5	UPL	Nt P-Forb	HAIRY BEDSTRAW
HELDIV	5	Helianthus divaricatus	5	UPL	Nt P-Forb	WOODLAND SUNFLOWER
HELGRO	2	Helianthus grosseserratus	-2	FACW-	Nt P-Forb	SAWTOOTH SUNFLOWER
LACSER	0	LACTUCA SERRIOLA	0	FAC	Ad B-Forb	PRICKLY LETTUCE
LEPCAM	0	LEPIDIUM CAMPESTRE	5	UPL	Ad B-Forb	FIELD CRESS
LESCAP	4	Lespedeza capitata	3	FACU	Nt P-Forb	ROUND-HEADED BUSH CLOVER
LYTSAL	0	LYTHRUM SALICARIA	-5	OBL	Ad P-Forb	PURPLE LOOSESTRIFE
MELALB	0	MELILOTUS ALBA	3	FACU	Ad B-Forb	WHITE SWEET CLOVER
MELLOF	0	MELILOTUS OFFICINALIS	3	FACU	Ad B-Forb	YELLOW SWEET CLOVER
MONPUN	5	Monarda punctata	5	UPL	Nt P-Forb	HORSE MINT
OENBIE	0	Oenothera biennis	3	FACU	Nt B-Forb	COMMON EVENING PRIMROSE
PANCAP	1	Panicum capillare	0	FAC	Nt A-Grass	OLD WITCH GRASS
PANLAT	5	Panicum latifolium	3	FACU	Nt P-Grass	BROAD-LEAVED PANIC GRASS
PANVIR	5	Panicum virgatum	-1	FAC+	Nt P-Grass	SWITCH GRASS
PARQUI	2	Parthenocissus quinquefolia	1	FAC-	Nt W-Vine	VIRGINIA CREEPER
PHAARU	0	PHALARIS ARUNDINACEA	-4	FACW+	Ad P-Grass	REED CANARY GRASS
PHRAUS	1	Phragmites australis	-4	FACW+	Nt P-Grass	COMMON REED
PLALAN	0	PLANTAGO LANCEOLATA	0	FAC	Ad P-Forb	ENGLISH PLANTAIN
POAPRA	0	POA PRATENSIS	1	FAC-	Ad P-Grass	KENTUCKY BLUE GRASS
POLCAL	3	Polygonatum canaliculatum	3	FACU	Nt P-Forb	SMOOTH SOLOMON'S SEAL
POPDEL	2	Populus deltoides	-1	FAC+	Nt Tree	EASTERN COTTONWOOD
POPTRE	4	Populus tremuloides	0	FAC	Nt Tree	QUAKING ASPEN
PRUSER	1	Prunus serotina	3	FACU	Nt Tree	WILD BLACK CHERRY
PTEAQL	5	Pteridium a. latiusculum	3	FACU	Cryptogam	BRACKEN FERN
QUEVEL	6	Quercus velutina	5	UPL	Nt Tree	BLACK OAK
RHUGLA	1	Rhus glabra	5	UPL	Nt Shrub	SMOOTH SUMAC
RHUTYP	1	Rhus typhina	5	UPL	Nt Tree	STAGHORN SUMAC
RIBCYN	5	Ribes cynosbati	5	UPL	Nt Shrub	PRICKLY WILD GOOSEBERRY
RUBALL	3	Rubus allegheniensis	2	FACU+	Nt Shrub	COMMON BLACKBERRY
RUBFLA	3	Rubus flagellaris	4	FACU-	Nt Shrub	COMMON DEWBERRY
RUBOCC	2	Rubus occidentalis	5	UPL	Nt Shrub	BLACK RASPBERRY
RUMCRI	0	RUMEX CRISPUS	-1	FAC+	Ad P-Forb	CURLY DOCK
SALDIS	2	Salix discolor	-3	FACW	Nt Shrub	PUSSY WILLOW
SALINT	1	Salix interior	-5	OBL	Nt Shrub	SANDBAR WILLOW
SALNIG	4	Salix nigra	-5	OBL	Nt Tree	BLACK WILLOW
SAPOFF	0	SAPONARIA OFFICINALIS	3	FACU	Ad P-Forb	BOUNCING BET
SILNOC	0	SILENE NOCTIFLORA	5	UPL	Ad A-Forb	NIGHT-FLOWERING CATCHFLY
SISALB	7	Sisyrinchium albidum	3	FACU	Nt P-Forb	COMMON BLUE-EYED GRASS
SMIRAC	3	Smilacina racemosa	3	FACU	Nt P-Forb	FEATHERY FALSE SOLOMON'S SEAL
SMIECI	5	Smilax ecirrhata	5	UPL	Nt P-Forb	UPRIGHT CARRION FLOWER
SOLALT	1	Solidago altissima	3	FACU	Nt P-Forb	TALL GOLDENROD
SOLGIG	4	Solidago gigantea	-3	FACW	Nt P-Forb	LATE GOLDENROD
SOLNEM	4	Solidago nemoralis	5	UPL	Nt P-Forb	OLD-FIELD GOLDENROD
SOLSPE	7	Solidago speciosa	5	UPL	Nt P-Forb	SHOWY GOLDENROD
STEMED	0	STELLARIA MEDIA	3	FACU	Ad A-Forb	COMMON CHICKWEED
TAROFF	0	TARAXACUM OFFICINALE	3	FACU	Ad P-Forb	COMMON DANDELION

TRAOHI	2 Tradescantia ohiensis	2 FACU+	Nt P-Forb	COMMON SPIDERWORT
TRADUB	0 TRAGOPOGON DUBIUS	5 UPL	Ad B-Forb	SAND GOAT'S BEARD
ULMPUM	0 ULMUS PUMILA	5 UPL	Ad Tree	SIBERIAN ELM
VERTHA	0 VERBASCUM THAPSUS	5 UPL	Ad B-Forb	COMMON MULLEIN
VERHAS	4 Verbena hastata	-4 FACW+	Nt P-Forb	BLUE VERVAIN
VERURU	5 Verbena urticifolia	5 UPL	Nt P-Forb	HAIRY WHITE VERVAIN

No primary or secondary indicators of wetland hydrology were observed at the three data points within Area 3a, failing the hydrology criterion. Compacted soil conditions, and not wetland hydrology, is the cause of the presence of some hydrophytic plant species observed within Area 3a.

The soil at Data Points 18, 19, and 21 was classified as Made Land, Orthents. The soil profile from Data Point 19 is used here to serve as a representative Made Land profile for Area 3a:

A fill horizon of dark grayish brown (10YR 4/2) sand was found from 0 to 5 inches in depth. Below this, another fill horizon of brownish yellow (10YR 6/6) sand was observed from 5 to 20 inches in depth. An Ab horizon of black (10YR 2/1) sandy loam was found from 20 to 27 inches in depth. Finally, a Cb horizon of grayish brown (2.5Y 5/2) sand was found from 27 to 34 inches in depth.

None of the Made Land soil profiles within Area 3a exhibit hydric soil field indicators, and all failed to meet the soils criterion.

All of the data points within Area 3a fail at least one of the three wetland criteria, and Area 3a does not qualify as wetland. A small portion of Area 3a, located in the southwestern corner of Pilot Section 3, contains Black Oak savanna. This small upland area combined with Area 3b, constitutes the only remnant dune and swale complex on Pilot Section 3.

Area 3b – Upland
Data Point 22

Area 3b is an approximately 1.48-acre remnant dune/Black Oak savanna located between an emergent wetland (Area 3c) and the southern property boundary of Pilot Section 3 (Exhibit V; Photo 30). The dominant plant species are Pointed Tick Trefoil, Black Oak, Tall Goldenrod, Common Oak Sedge, Woodland Sunflower (*Helianthus divaricatus*) and Black Raspberry (*Rubus occidentalis*). None of these dominant plant species is hydrophytic, so the vegetation criterion is not satisfied.

The floristic diversity of the remnant dune/Black Oak savanna plant community is of moderate to high quality (NMC = 3.30, FQI = 26.60). The floristic quality calculations and plant species inventory for Area 3b are provided below.

FLORISTIC QUALITY DATA	Native	63	78.8%	Adventive	17	21.3%
63 NATIVE SPECIES	Tree	7	8.8%	Tree	1	1.3%
80 Total Species	Shrub	5	6.3%	Shrub	2	2.5%
3.3 NATIVE MEAN C	W-Vine	2	2.5%	W-Vine	0	0.0%
2.6 W/Adventives	H-Vine	1	1.3%	H-Vine	0	0.0%
26.6 NATIVE FQI	P-Forb	32	40.0%	P-Forb	8	10.0%
23.6 W/Adventives	B-Forb	3	3.8%	B-Forb	3	3.8%
1.9 NATIVE MEAN W	A-Forb	4	5.0%	A-Forb	1	1.3%
1.8 W/Adventives	P-Grass	4	5.0%	P-Grass	2	2.5%

AVG: Fac. Upland (+)	A-Grass	2	2.5%	A-Grass	0	0.0%
	P-Sedge	2	2.5%	P-Sedge	0	0.0%
	A-Sedge	0	0.0%	A-Sedge	0	0.0%
	Cryptogam	1	1.3%			

ACRONYM	C	SCIENTIFIC NAME	W	WETNESS	PHYSIOGNOMY	COMMON NAME
ACESAI	0	Acer saccharinum	-3	FACW	Nt Tree	SILVER MAPLE
ACHMIL	0	ACHILLEA MILLEFOLIUM	3	FACU	Ad P-Forb	YARROW
AGRPAR	7	Agrimonia parviflora	-1	FAC+	Nt P-Forb	SWAMP AGRIMONY
ALLPET	0	ALLIARIA PETIOLATA	0	FAC	Ad B-Forb	GARLIC MUSTARD
AMBARE	0	Ambrosia a. elatior	3	FACU	Nt A-Forb	COMMON RAGWEED
AMBTRI	0	Ambrosia trifida	-1	FAC+	Nt A-Forb	GIANT RAGWEED
AMPBRB	4	Amphicarpaea bracteata	0	FAC	Nt P-Forb	UPLAND HOG PEANUT
ANDGER	5	Andropogon gerardii	1	FAC-	Nt P-Grass	BIG BLUESTEM GRASS
APOAND	5	Apocynum androsaemifolium	5	UPL	Nt P-Forb	SPREADING DOGBANE
AQUCAN	6	Aquilegia canadensis	1	FAC-	Nt P-Forb	WILD COLUMBINE
ARTCAU	5	Artemisia caudata	5	UPL	Nt B-Forb	BEACH WORMWOOD
ASCSYR	0	Asclepias syriaca	5	UPL	Nt P-Forb	COMMON MILKWEED
ASTERI	5	Aster ericoides	4	FACU-	Nt P-Forb	HEATH ASTER
ASTPIL	0	Aster pilosus	2	FACU+	Nt P-Forb	HAIRY ASTER
CXPENS	5	Carex pensylvanica	5	UPL	Nt P-Sedge	COMMON OAK SEDGE
CENLON	0	Cenchrus longispinus	5	UPL	Nt A-Grass	SANDBUR
CINARU	5	Cinna arundinacea	-3	FACW	Nt P-Grass	COMMON WOOD REED
COMCOM	0	COMMELINA COMMUNIS	0	FAC	Ad A-Forb	COMMON DAY FLOWER
CRYCAN	2	Cryptotaenia canadensis	0	FAC	Nt P-Forb	HONEWORT
CYPFIL	5	Cyperus filiculmis	4	FACU-	Nt P-Sedge	SLENDER SAND SEDGE
DAUCAR	0	DAUCUS CAROTA	5	UPL	Ad B-Forb	QUEEN ANNE'S LACE
DESGLU	5	Desmodium glutinosum	5	UPL	Nt P-Forb	POINTED TICK TREFOIL
DIOVIL	7	Dioscorea villosa	1	FAC-	Nt H-Vine	WILD YAM
ERIANS	0	Erigeron annuus	1	FAC-	Nt B-Forb	ANNUAL FLEABANE
ERICAN	0	Erigeron canadensis	1	FAC-	Nt A-Forb	HORSEWEED
EUPALT	0	Eupatorium altissimum	3	[FACU]	Nt P-Forb	TALL BONESET
EUPRUG	4	Eupatorium rugosum	5	UPL	Nt P-Forb	WHITE SNAKEROOT
EUPCOR	2	Euphorbia corollata	5	UPL	Nt P-Forb	FLOWERING SPURGE
FRAVIR	1	Fragaria virginiana	1	FAC-	Nt P-Forb	WILD STRAWBERRY
GALPIL	10	Galium pilosum	5	UPL	Nt P-Forb	HAIRY BEDSTRAW
HELDIV	5	Helianthus divaricatus	5	UPL	Nt P-Forb	WOODLAND SUNFLOWER
HESMAT	0	HESPERIS MATRONALIS	5	UPL	Ad P-Forb	DAME'S ROCKET
IMPCAP	3	Impatiens capensis	-3	FACW	Nt A-Forb	ORANGE JEWELWEED
JUNTEN	0	Juncus tenuis	2	[FACU+]	Nt P-Forb	PATH RUSH
LEOCAR	0	LEONURUS CARDIACA	5	UPL	Ad P-Forb	MOTHERWORT
LILMIC	6	Lilium michiganense	-1	FAC+	Nt P-Forb	TURK'S CAP LILY
LONTAT	0	LONICERA TATARICA	5	[UPL]	Ad Shrub	TARTARIAN HONEYSUCKLE
LYTSAL	0	LYTHRUM SALICARIA	-5	OBL	Ad P-Forb	PURPLE LOOSESTRIFE
MONFIS	4	Monarda fistulosa	3	FACU	Nt P-Forb	WILD BERGAMOT
MORALB	0	MORUS ALBA	0	FAC	Ad Tree	WHITE MULBERRY
OENCLE	7	Oenothera clelandii	5	[UPL]	Nt B-Forb	SAND EVENING PRIMROSE
OXASTR	0	Oxalis stricta	5	UPL	Nt P-Forb	COMMON WOOD SORREL
PANCAP	1	Panicum capillare	0	FAC	Nt A-Grass	OLD WITCH GRASS
PANVIR	5	Panicum virgatum	-1	FAC+	Nt P-Grass	SWITCH GRASS
PARQUI	2	Parthenocissus quinquefolia	1	FAC-	Nt W-Vine	VIRGINIA CREEPER
PHAARU	0	PHALARIS ARUNDINACEA	-4	FACW+	Ad P-Grass	REED CANARY GRASS
PHRAUS	1	Phragmites australis	-4	FACW+	Nt P-Grass	COMMON REED
PLAMAJ	0	PLANTAGO MAJOR	-1	FAC+	Ad P-Forb	COMMON PLANTAIN
POAPRA	0	POA PRATENSIS	1	FAC-	Ad P-Grass	KENTUCKY BLUE GRASS
POLCAL	3	Polygonatum canaliculatum	3	FACU	Nt P-Forb	SMOOTH SOLOMON'S SEAL
POPDEL	2	Populus deltoides	-1	FAC+	Nt Tree	EASTERN COTTONWOOD
PREALB	5	Prenanthes alba	3	FACU	Nt P-Forb	LION'S FOOT
PRUVUV	0	PRUNELLA VULGARIS	5	[UPL]	Ad P-Forb	LAWN PRUNELLA
PRUAME	5	Prunus americana	5	UPL	Nt Tree	WILD PLUM
PRUSER	1	Prunus serotina	3	FACU	Nt Tree	WILD BLACK CHERRY
PTEAQL	5	Pteridium a. latiusculum	3	FACU	Cryptogam	BRACKEN FERN
QUEVEL	6	Quercus velutina	5	UPL	Nt Tree	BLACK OAK
RHUCOL	6	Rhus copallina latifolia	5	UPL	Nt Shrub	SHINING SUMAC
ROSCAR	5	Rosa carolina	4	FACU-	Nt Shrub	PASTURE ROSE
ROSMUL	0	ROSA MULTIFLORA	3	FACU	Ad Shrub	MULTIFLORA ROSE
RUBALL	3	Rubus allegheniensis	2	FACU+	Nt Shrub	COMMON BLACKBERRY
RUBOCC	2	Rubus occidentalis	5	UPL	Nt Shrub	BLACK RASPBERRY
RUMCRI	0	RUMEX CRISPUS	-1	FAC+	Ad P-Forb	CURLY DOCK
SALINT	1	Salix interior	-5	OBL	Nt Shrub	SANDBAR WILLOW
SALNIG	4	Salix nigra	-5	OBL	Nt Tree	BLACK WILLOW
SANGRE	2	Sanicula gregaria	-1	FAC+	Nt P-Forb	CLUSTERED BLACK SNAKEROOT
SASALB	3	Sassafras albidum	3	FACU	Nt Tree	SASSAFRAS

SILSTE	6	Silene stellata	5	UPL	Nt P-Forb	STARRY CAMPION
SMIRAC	3	Smilacina racemosa	3	FACU	Nt P-Forb	FEATHERY FALSE SOLOMON'S SEAL
SOLALT	1	Solidago altissima	3	FACU	Nt P-Forb	TALL GOLDENROD
SOLGIG	4	Solidago gigantea	-3	FACW	Nt P-Forb	LATE GOLDENROD
SOLGRN	3	Solidago g. nuttallii	0	[FAC]	Nt P-Forb	HAIRY GRASS-LEAVED GOLDENROD
SOLULM	5	Solidago ulmifolia	5	UPL	Nt P-Forb	ELM-LEAVED GOLDENROD
TAROFF	0	TARAXACUM OFFICINALE	3	FACU	Ad P-Forb	COMMON DANDELION
TRAOHI	2	Tradescantia ohiensis	2	FACU+	Nt P-Forb	COMMON SPIDERWORT
VERTHA	0	VERBASCUM THAPSUS	5	UPL	Ad B-Forb	COMMON MULLEIN
VERURU	5	Verbena urticifolia	5	UPL	Nt P-Forb	HAIRY WHITE VERVAIN
VIOSOR	3	Viola sororia	1	FAC-	Nt P-Forb	COMMON BLUE VIOLET
VITRIP	2	Vitis riparia	-2	FACW-	Nt W-Vine	RIVERBANK GRAPE
ZIZAUR	7	Zizia aurea	-1	FAC+	Nt P-Forb	GOLDEN ALEXANDERS

Saturated soil was not observed to a depth of 25 inches at Data Point 22. This depth is too great to satisfy the hydrology criterion.

The soil at Data Point 22 was classified as a Morocco sandy loam taxadjunct. The Ap horizon from 0 to 5 inches consisted of a black (2.5Y 2/1) sandy loam with many fine roots. The A horizon from 5 to 8 inches consisted of a black (2.5Y 2/1) sandy loam with common fine roots. The AB horizon from 8 to 11 inches consisted of a very dark gray (10YR 3/1) and dark brown (10YR 3/3) loamy sand with common fine roots. The Bw1 horizon consisted of brown (10YR 4/3) and dark grayish brown (10YR 4/2) loamy sand with few fine roots. The Bw2 horizon from 17 to 25 inches consisted of brown (10YR 4/3) and dark grayish brown (10YR 4/2) loamy sand with few faint dark yellowish brown (10YR ¾) redox concentrations as pore linings. Hydric soil field indicators were not observed, so the soils criterion is not satisfied.

Area 3b fails all three wetland criteria and does not qualify as wetland.

Area 3c – Emergent Wetland
Data Points 20 and 23

Area 3c is an approximately 4.91-acre emergent wetland located within the southern portion of Pilot Section 3 (Photos 14 and 31). The amount of disturbance in the surrounding uplands has resulted in degradation of the plant community, with the result being that most of the wetland is dominated by Purple Loosestrife, Typha Latifolia (*Broad-leaved Cattail*), and Reed Canary Grass (*Phalaris arundinacea*). The dominant species are Purple Loosestrife, Riverbank Grape, Narrow-leaved Cattail, and Black Willow (*Salix nigra*), Elderberry (*Sambucus canadensis*), Spotted Joe Pye Weed (*Eupatorium maculatum*), Blue Joint Grass (*Calamagrostis canadensis*), White Snakeroot (*Eupatorium rugosum*), Royal Fern (*Osmunda regalis spectabilis*), and Upland Hog Peanut (*Amphicarpaea bracteata*). Greater than 50% of the dominant species are hydrophytic; thus, the vegetation criterion is satisfied. Despite the visual dominance by Purple Loosestrife, Broad-leaved Cattail and Reed Canary Grass within the wetland, the emergent wetland plant community is predominantly composed of higher quality species resulting in a moderately high floristic quality (NMC = 4.10, FQI = 31.90). Most of these higher quality species are hidden among and underneath the aggressive dominants or located along the less disturbed southern boundary of Area 3c. The floristic quality calculations and plant species inventory are provided below.

FLORISTIC QUALITY DATA	Native	60	89.6%	Adventive	7	10.4%
60 NATIVE SPECIES	Tree	4	6.0%	Tree	2	3.0%
67 Total Species	Shrub	6	9.0%	Shrub	0	0.0%
4.1 NATIVE MEAN C	W-Vine	2	3.0%	W-Vine	1	1.5%

3.7 W/Adventives	H-Vine	1	1.5%	H-Vine	0	0.0%
31.9 NATIVE FQI	P-Forb	28	41.8%	P-Forb	2	3.0%
30.2 W/Adventives	B-Forb	1	1.5%	B-Forb	1	1.5%
-2.4 NATIVE MEAN W	A-Forb	7	10.4%	A-Forb	0	0.0%
-2.2 W/Adventives	P-Grass	3	4.5%	P-Grass	1	1.5%
AVG: Fac. Wetland (-)	A-Grass	0	0.0%	A-Grass	0	0.0%
	P-Sedge	4	6.0%	P-Sedge	0	0.0%
	A-Sedge	0	0.0%	A-Sedge	0	0.0%
	Cryptogam	4	6.0%			

ACRONYM	C	SCIENTIFIC NAME	W	WETNESS	PHYSIOGNOMY	COMMON NAME
ACESAI	0	Acer saccharinum	-3	FACW	Nt Tree	SILVER MAPLE
ALISUB	4	Alisma subcordatum	-5	OBL	Nt P-Forb	COMMON WATER PLANTAIN
ALLPET	0	ALLIARIA PETIOLATA	0	FAC	Ad B-Forb	GARLIC MUSTARD
AMBTRI	0	Ambrosia trifida	-1	FAC+	Nt A-Forb	GIANT RAGWEED
AMPBRB	4	Amphicarpaea bracteata	0	FAC	Nt P-Forb	UPLAND HOG PEANUT
ASTNOV	4	Aster novae-angliae	-3	FACW	Nt P-Forb	NEW ENGLAND ASTER
ASTSIS	3	Aster simplex	-5	OBL	Nt P-Forb	PANICLED ASTER
ASTUMB	9	Aster umbellatus	-3	FACW	Nt P-Forb	FLAT-TOP ASTER
BOECYC	2	Boehmeria cylindrica	-5	OBL	Nt P-Forb	FALSE NETTLE
CALCAN	3	Calamagrostis canadensis	-5	OBL	Nt P-Grass	BLUE JOINT GRASS
CAMAPA	8	Campanula aparinoides	-5	OBL	Nt P-Forb	MARSH BELLFLOWER
CXLACU	6	Carex lacustris	-5	OBL	Nt P-Sedge	COMMON LAKE SEDGE
CXSTRI	5	Carex stricta	-5	OBL	Nt P-Sedge	COMMON TUSSOCK SEDGE
CEPOCC	5	Cephalanthus occidentalis	-5	OBL	Nt Shrub	BUTTONBUSH
CICMAC	6	Cicuta maculata	-5	OBL	Nt P-Forb	WATER HEMLOCK
CYPFIL	5	Cyperus filiculmis	4	FACU-	Nt P-Sedge	SLENDER SAND SEDGE
DIOVIL	7	Dioscorea villosa	1	FAC-	Nt H-Vine	WILD YAM
DRYTHP	6	Dryopteris t. pubescens	-5	[OBL]	Cryptogam	MARSH SHIELD FERN
EUPPER	4	Eupatorium perfoliatum	-4	FACW+	Nt P-Forb	COMMON BONESET
EUPRUG	4	Eupatorium rugosum	5	UPL	Nt P-Forb	WHITE SNAKEROOT
GALAPA	1	Galium aparine	3	FACU	Nt A-Forb	ANNUAL BEDSTRAW
HELDIV	5	Helianthus divaricatus	5	UPL	Nt P-Forb	WOODLAND SUNFLOWER
HELGRO	2	Helianthus grosseserratus	-2	FACW-	Nt P-Forb	SAWTOOTH SUNFLOWER
IMPCAP	3	Impatiens capensis	-3	FACW	Nt A-Forb	ORANGE JEWELWEED
IRIVIS	5	Iris v. shrevei	-5	OBL	Nt P-Forb	BLUE FLAG
LEOCAR	0	LEONURUS CARDIACA	5	UPL	Ad P-Forb	MOTHERWORT
LYCAME	5	Lycopus americanus	-5	OBL	Nt P-Forb	COMMON WATER HOREHOUND
LYTSAL	0	LYTHRUM SALICARIA	-5	OBL	Ad P-Forb	PURPLE LOOSESTRIFE
MENARV	5	Mentha a. villosa	-5	[OBL]	Nt P-Forb	WILD MINT
MORALB	0	MORUS ALBA	0	FAC	Ad Tree	WHITE MULBERRY
OENCLE	7	Oenothera clelandii	5	[UPL]	Nt B-Forb	SAND EVENING PRIMROSE
ONOSEN	8	Onoclea sensibilis	-3	FACW	Cryptogam	SENSITIVE FERN
OSMCIN	7	Osmunda cinnamomea	-3	FACW	Cryptogam	CINNAMON FERN
OSMRES	8	Osmunda r. spectabilis	-5	OBL	Cryptogam	ROYAL FERN
PARQUI	2	Parthenocissus quinquefolia	1	FAC-	Nt W-Vine	VIRGINIA CREEPER
PHAARU	0	PHALARIS ARUNDINACEA	-4	FACW+	Ad P-Grass	REED CANARY GRASS
PHRAUS	1	Phragmites australis	-4	FACW+	Nt P-Grass	COMMON REED
POLAMS	4	Polygonum a. stipulaceum	-5	OBL	Nt P-Forb	WATER KNOTWEED
POLLAP	0	Polygonum lapathifolium	-4	FACW+	Nt A-Forb	HEARTSEASE
POLPUN	6	Polygonum punctatum	-5	OBL	Nt A-Forb	SMARTWEED
POLSAG	8	Polygonum sagittatum	-5	OBL	Nt A-Forb	ARROW-LEAVED TEAR-THUMB
POPALB	0	POPULUS ALBA	5	UPL	Ad Tree	WHITE POPLAR
POPDEL	2	Populus deltoides	-1	FAC+	Nt Tree	EASTERN COTTONWOOD
POPTRE	4	Populus tremuloides	0	FAC	Nt Tree	QUAKING ASPEN
RIBCYN	5	Ribes cynosbati	5	UPL	Nt Shrub	PRICKLY WILD GOOSEBERRY
RORPAF	4	Rorippa p. fernaldiana	-5	OBL	Nt A-Forb	MARSH CRESS
RUBALL	3	Rubus allegheniensis	2	FACU+	Nt Shrub	COMMON BLACKBERRY
RUBOCC	2	Rubus occidentalis	5	UPL	Nt Shrub	BLACK RASPBERRY
SALINT	1	Salix interior	-5	OBL	Nt Shrub	SANDBAR WILLOW
SALNIG	4	Salix nigra	-5	OBL	Nt Tree	BLACK WILLOW
SAMCAN	1	Sambucus canadensis	-2	FACW-	Nt Shrub	ELDERBERRY
SCIFLU	4	Scirpus fluviatilis	-5	OBL	Nt P-Sedge	RIVER BULRUSH
SCULAT	5	Scutellaria lateriflora	-5	OBL	Nt P-Forb	MAD-DOG SKULLCAP
SIUSUA	7	Sium suave	-5	OBL	Nt P-Forb	TALL WATER PARSNIP
SOLDUL	0	SOLANUM DULCAMARA	0	FAC	Ad W-Vine	BITTERSWEET NIGHTSHADE
SOLALT	1	Solidago altissima	3	FACU	Nt P-Forb	TALL GOLDENROD
SOLGIG	4	Solidago gigantea	-3	FACW	Nt P-Forb	LATE GOLDENROD
SOLGRN	3	Solidago g. nuttallii	0	[FAC]	Nt P-Forb	HAIRY GRASS-LEAVED GOLDENROD
SOLPAT	9	Solidago patula	-5	OBL	Nt P-Forb	SWAMP GOLDENROD
SPAPEC	4	Spartina pectinata	-4	FACW+	Nt P-Grass	PRAIRIE CORD GRASS

STATEH	5 Stachys t. hispida	-4 FACW+	Nt	P-Forb	MARSH HEDGE NETTLE
TYPANG	1 Typha angustifolia	-5 OBL	Nt	P-Forb	NARROW-LEAVED CATTAIL
TYPLAT	1 Typha latifolia	-5 OBL	Nt	P-Forb	BROAD-LEAVED CATTAIL
URTPRO	2 Urtica procera	-1 FAC+	Nt	P-Forb	TALL NETTLE
VERHAS	4 Verbena hastata	-4 FACW+	Nt	P-Forb	BLUE VERVAIN
VITRIP	2 Vitis riparia	-2 FACW-	Nt	W-Vine	RIVERBANK GRAPE
ZIZAUR	7 Zizia aurea	-1 FAC+	Nt	P-Forb	GOLDEN ALEXANDERS

Primary and secondary indicators of wetland hydrology were observed at Data Points 20 and 23, satisfying the hydrology criterion at both locations.

The soil at Data Point 20 was classified as Adrian muck, taxadjunct. An A horizon of black (N2.5/) mucky loam was found from 0 to 23 inches in depth. Below this, a Bg horizon of grayish brown (2.5Y 5/2) sand was observed. This horizon contained common prominent dark yellowish brown (10YR 4/6) redoximorphic features. The soil profile at Data Point 20 exhibits hydric soil field indicator F1, *Loamy Mucky Mineral*, and satisfies the soils criterion.

The soil at Data Point 23 was classified as a mucky Gilford sandy loam. The A1 horizon from 0 to 5 inches consisted of a black (N 2.5/) mucky sandy loam. The A2 horizon from 5 to 10 inches consisted of a black (N2.5/) light sandy loam with few prominent dark brown (10YR 3/3) and dark yellowish brown (10YR 4/6) redoximorphic features. The ABg horizon from 10 to 24 inches consisted of 75% black (2.5Y 2/1) and 25% grayish brown (2.5Y 5/2) sandy loam. The Bg horizon from 24 to 30 inches consisted of a light grayish brown (2.5Y 6/2) loamy sand with few distinct very dark gray (10YR 3/1) organic coatings. The soil profile exhibits F1, loamy mucky material and F6, Redox Dark Surface, and satisfies the soils criterion.

All three wetland criteria are satisfied; thus, Area 3c qualifies as wetland. Due to its closed depressional nature Area 3c is likely to be an isolated wetland; however, it is also part of the only remnant dune and swale complex found on Pilot Section 3 and discharges to the wetland are likely to be regulated by the DEM.

PILOT SECTION 4

Area 4a – Upland

Data Points 8, 10, 12, 13, 15, 16, and 17

Area 4a consists of the upland portions of the 36-acre Pilot Section 4. This area includes two remnant dunes, a leveled dune sand prairie, and a weedy old field. Pilot Section 4 can for simplicity's sake be divided into two halves, the northern half and the southern half. The southern half of Pilot Section 4 contains two high quality relic dunes (Photos 20 and 22) separated by a wetland swale (see Area 4b below) and a portion of leveled dune that has developed into a high quality dry sand prairie (Photo 23). The northern half of Pilot Section 4 has been severely altered from its original dune and swale topography. Nearly all of the former dune features have been leveled, resulting in a plant community comprised of non-native weeds and native prairie grasses and forbs (Photos 25, 26 and 29). The southern half of Pilot Section 4 contains the remaining dune portion of Area 4a and includes high plant species diversity, yielding a high floristic quality. The northern half of Pilot Section 4, the more severely degraded portion of Area 4a, has moderate diversity and floristic quality because of historic earthwork and continuing damage by all-terrain vehicles (ATV's). A large portion of Area 4a contains

apparently unauthorized ATV trails, which have caused severe degradation to a small portion of remnant dune, but more so to the old-field portion of Area 4a.

Seven data points were collected within Area 4a. The dominant plant species in this area are Black Oak, Black Cherry, Riverbank Grape, Woodland Sunflower, Quack Grass, Marram Grass, Big Bluestem Grass, Kentucky Blue Grass, Tall Goldenrod, Creeping Charlie, Eastern Cottonwood, Common Reed, Gray Dogwood (*Cornus racemosa*), Bracken Fern (*Pteridium aquilinum latiusculum*), Common Oak Sedge (*Carex pensylvanica*), Pasture Rose (*Rosa carolina*), Little Bluestem Grass (*Andropogon scoparius*), Switch Grass (*Panicum virgatum*), Wild Strawberry (*Fragaria virginiana*), Giant Ragweed (*Ambrosia trifida*), Sandbar Willow (*Salix interior*), Round-headed Bushclover (*Lespedeza capitata*), Tall Scouring Rush (*Equisetum hyemale*), Canada Goldenrod (*Solidago canadensis*), and Prairie Cord Grass (*Spartina pectinata*). All seven data points had 50% or less hydrophytic species as dominants, thereby failing the vegetation criterion.

As stated previously, the dune and swale plant community of Area 4a exhibited high floristic diversity with a relatively high proportion of high-ranked natives, and therefore is considered high quality (NMC = 4.60, FQI = 54.70). The floristic quality calculations and plant species inventory are provided below.

FLORISTIC QUALITY DATA						
142 NATIVE SPECIES	Native	142	81.6%	Adventive	32	18.4%
174 Total Species	Tree	8	4.6%	Tree	3	1.7%
4.6 NATIVE MEAN C	Shrub	16	9.2%	Shrub	2	1.1%
3.7 W/Adventives	W-Vine	3	1.7%	W-Vine	0	0.0%
54.7 NATIVE FQI	H-Vine	1	0.6%	H-Vine	0	0.0%
49.4 W/Adventives	P-Forb	75	43.1%	P-Forb	7	4.0%
1.6 NATIVE MEAN W	B-Forb	6	3.4%	B-Forb	9	5.2%
1.8 W/Adventives	A-Forb	3	1.7%	A-Forb	5	2.9%
AVG: Fac. Upland (+)	P-Grass	16	9.2%	P-Grass	2	1.1%
	A-Grass	2	1.1%	A-Grass	4	2.3%
	P-Sedge	7	4.0%	P-Sedge	0	0.0%
	A-Sedge	0	0.0%	A-Sedge	0	0.0%
	Cryptogam	5	2.9%			

ACRONYM	C	SCIENTIFIC NAME	W	WETNESS	PHYSIOGNOMY	COMMON NAME
ACENEG	0	Acer negundo	-2	FACW-	Nt Tree	BOX ELDER
ACHMIL	0	ACHILLEA MILLEFOLIUM	3	FACU	Ad P-Forb	YARROW
AGRREP	0	AGROPYRON REPENS	3	FACU	Ad P-Grass	QUACK GRASS
AMBARE	0	Ambrosia a. elatior	3	FACU	Nt A-Forb	COMMON RAGWEED
AMBTRI	0	Ambrosia trifida	-1	FAC+	Nt A-Forb	GIANT RAGWEED
AMMBRE	7	Ammophila breviligulata	5	UPL	Nt P-Grass	MARRAM GRASS
AMPBRB	4	Amphicarpaea bracteata	0	FAC	Nt P-Forb	UPLAND HOG PEANUT
ANDGER	5	Andropogon gerardii	1	FAC-	Nt P-Grass	BIG BLUESTEM GRASS
ANDSCO	5	Andropogon scoparius	4	FACU-	Nt P-Grass	LITTLE BLUESTEM GRASS
ANECYL	6	Anemone cylindrica	5	UPL	Nt P-Forb	THIMBLEWEED
ANTNEG	4	Antennaria neglecta	5	UPL	Nt P-Forb	CAT'S FOOT
APOCAN	4	Apocynum cannabinum	0	FAC	Nt P-Forb	INDIAN HEMP
AQUCAN	6	Aquilegia canadensis	1	FAC-	Nt P-Forb	WILD COLUMBINE
ARALYR	5	Arabis lyrata	4	FACU-	Nt B-Forb	SAND CRESS
ARTCAU	5	Artemisia caudata	5	UPL	Nt B-Forb	BEACH WORMWOOD
ASCSYR	0	Asclepias syriaca	5	UPL	Nt P-Forb	COMMON MILKWEED
ASPOFF	0	ASPARAGUS OFFICINALIS	3	FACU	Ad P-Forb	ASPARAGUS
ASTDUM	5	Aster dumosus	-1	FAC+	Nt P-Forb	RICE-BUTTON ASTER
ASTERI	5	Aster ericoides	4	FACU-	Nt P-Forb	HEATH ASTER
ASTLAE	9	Aster laevis	5	UPL	Nt P-Forb	SMOOTH BLUE ASTER
ASTNOV	4	Aster novae-angliae	-3	FACW	Nt P-Forb	NEW ENGLAND ASTER
ASTPIL	0	Aster pilosus	2	FACU+	Nt P-Forb	HAIRY ASTER
ASTUMB	9	Aster umbellatus	-3	FACW	Nt P-Forb	FLAT-TOP ASTER
AURFLA	9	Aureolaria flava	5	UPL	Nt P-Forb	SMOOTH FALSE FOXGLOVE
BARVUL	0	BARBAREA VULGARIS	0	FAC	Ad B-Forb	YELLOW ROCKET

BROJAP	0	BROMUS JAPONICUS	3	FACU	Ad A-Grass	JAPANESE CHESS
BROTEC	0	BROMUS TECTORUM	5	UPL	Ad A-Grass	DOWNY BROME
CALCAN	3	Calamagrostis canadensis	-5	OBL	Nt P-Grass	BLUE JOINT GRASS
CXHAYD	6	Carex haydenii	-5	OBL	Nt P-Sedge	LONG-SCALED TUSSOCK SEDGE
CXMUHL	5	Carex muhlenbergii	5	UPL	Nt P-Sedge	SAND BRACTED SEDGE
CXPENS	5	Carex pensylvanica	5	UPL	Nt P-Sedge	COMMON OAK SEDGE
CXSCOP	7	Carex scoparia	-3	FACW	Nt P-Sedge	LANCE-FRUITED OVAL SEDGE
CXSICC	10	Carex siccata	-5	OBL	Nt P-Sedge	RUNNING SAVANNA SEDGE
CATSPE	0	CATALPA SPECIOSA	3	FACU	Ad Tree	HARDY CATALPA
CEAAME	6	Ceanothus americanus	5	UPL	Nt Shrub	NEW JERSEY TEA
CENLON	0	Cenchrus longispinus	5	UPL	Nt A-Grass	SANDBUR
CHEALB	0	CHENOPODIUM ALBUM	1	FAC-	Ad A-Forb	LAMB'S QUARTERS
CICMAC	6	Cicuta maculata	-5	OBL	Nt P-Forb	WATER HEMLOCK
CIRDIS	2	Cirsium discolor	5	UPL	Nt B-Forb	PASTURE THISTLE
CIRVUL	0	CIRSIUM VULGARE	4	FACU-	Ad B-Forb	BULL THISTLE
COMUMB	7	Comandra umbellata	3	FACU	Nt P-Forb	FALSE TOADFLAX
CONSEP	1	Convolvulus sepium	0	FAC	Nt P-Forb	HEDGE BINDWEED
CORTRP	5	Coreopsis tripteris	0	FAC	Nt P-Forb	TALL COREOPSIS
CORRAC	1	Cornus racemosa	-2	FACW-	Nt Shrub	GRAY DOGWOOD
CORAME	5	Corylus americana	4	FACU-	Nt Shrub	AMERICAN HAZELNUT
CUSGRO	4	Cuscuta gronovii	-5	[OBL]	Nt A-Forb	COMMON DODDER
CYPFIL	5	Cyperus filiculmis	4	FACU-	Nt P-Sedge	SLENDER SAND SEDGE
CYPSCH	5	Cyperus schweinitzii	5	[UPL]	Nt P-Sedge	ROUGH SAND SEDGE
CYPCPU	10	Cypripedium c. pubescens	-1	[FAC+]	Nt P-Forb	LARGE YELLOW LADY'S SLIPPER
DAUCAR	0	DAUCUS CAROTA	5	UPL	Ad B-Forb	QUEEN ANNE'S LACE
ECHLOB	5	Echinocystis lobata	-2	FACW-	Nt H-Vine	WILD CUCUMBER
ELYCAN	4	Elymus canadensis	1	FAC-	Nt P-Grass	CANADA WILD RYE
ELYVIR	4	Elymus virginicus	-2	FACW-	Nt P-Grass	VIRGINIA WILD RYE
EQUARV	0	Equisetum arvense	0	FAC	Cryptogam	HORSETAIL
EQUHYE	3	Equisetum hyemale	-2	FACW-	Cryptogam	TALL SCOURING RUSH
ERASPE	3	Eragrostis spectabilis	5	UPL	Nt P-Grass	PURPLE LOVE GRASS
ERIPHI	4	Erigeron philadelphicus	-3	FACW	Nt P-Forb	MARSH FLEABANE
ERISTR	5	Erigeron strigosus	5	[UPL]	Nt B-Forb	DAISY FLEABANE
EUPALT	0	Eupatorium altissimum	3	[FACU]	Nt P-Forb	TALL BONESET
EUPRUG	4	Eupatorium rugosum	5	UPL	Nt P-Forb	WHITE SNAKEROOT
EUPSEM	0	Eupatorium serotinum	-1	FAC+	Nt P-Forb	LATE BONESET
EUPCOR	2	Euphorbia corollata	5	UPL	Nt P-Forb	FLOWERING SPURGE
FRAVIR	1	Fragaria virginiana	1	FAC-	Nt P-Forb	WILD STRAWBERRY
GALCIH	7	Galium c. hypomalacum	5	[UPL]	Nt P-Forb	HAIRY WILD LICORICE
GALOBT	5	Galium obtusum	-4	FACW+	Nt P-Forb	WILD MADDER
GALPIL	10	Galium pilosum	5	UPL	Nt P-Forb	HAIRY BEDSTRAW
GERMAC	4	Geranium maculatum	5	[UPL]	Nt P-Forb	WILD GERANIUM
GEUCAN	1	Geum canadense	0	FAC	Nt P-Forb	WOOD AVENS
GLEHED	0	GLECHOMA HEDERACEA	3	FACU	Ad P-Forb	CREEPING CHARLIE
HELDIV	5	Helianthus divaricatus	5	UPL	Nt P-Forb	WOODLAND SUNFLOWER
HELGRO	2	Helianthus grosseserratus	-2	FACW-	Nt P-Forb	SAWTOOTH SUNFLOWER
HEURIC	8	Heuchera richardsonii	1	FAC-	Nt P-Forb	PRAIRIE ALUM ROOT
HOLUMB	0	HOLOSTEUM UMBELLATUM	5	UPL	Ad A-Forb	JAGGED CHICKWEED
HYPHIR	9	Hypoxis hirsuta	0	FAC	Nt P-Forb	YELLOW STAR GRASS
KOECRI	7	Koeleria cristata	5	UPL	Nt P-Grass	JUNE GRASS
LEPCAM	0	LEPIDIUM CAMPESTRE	5	UPL	Ad B-Forb	FIELD CRESS
LESCAP	4	Lespedeza capitata	3	FACU	Nt P-Forb	ROUND-HEADED BUSH CLOVER
LIAASP	6	Liatris aspera	5	UPL	Nt P-Forb	ROUGH BLAZING STAR
LILPHA	10	Lilium p. andinum	1	FAC-	Nt P-Forb	PRAIRIE LILY
LITCAN	8	Lithospermum canescens	5	UPL	Nt P-Forb	HOARY PUCCOON
LITCRO	8	Lithospermum croceum	5	UPL	Nt P-Forb	HAIRY PUCCOON
LONMAA	0	LONICERA MAACKII	5	UPL	Ad Shrub	AMUR HONEYSUCKLE
LONTAT	0	LONICERA TATARICA	5	[UPL]	Ad Shrub	TARTARIAN HONEYSUCKLE
LUPPEO	7	Lupinus p. occidentalis	5	UPL	Nt P-Forb	WILD LUPINE
LYCALB	0	LYCHNIS ALBA	5	UPL	Ad A-Forb	WHITE CAMPION
LYTSAL	0	LYTHRUM SALICARIA	-5	OBL	Ad P-Forb	PURPLE LOOSESTRIFE
MELALB	0	MELILOTUS ALBA	3	FACU	Ad B-Forb	WHITE SWEET CLOVER
MELLOF	0	MELILOTUS OFFICINALIS	3	FACU	Ad B-Forb	YELLOW SWEET CLOVER
MENARV	5	Mentha arvensis villosa	-5	[OBL]	Nt P-Forb	WILD MINT
MONPUN	5	Monarda punctata	5	UPL	Nt P-Forb	HORSE MINT
MORALB	0	MORUS ALBA	0	FAC	Ad Tree	WHITE MULBERRY
NEPCAT	0	NEPETA CATARIA	1	FAC-	Ad P-Forb	CATNIP
OENBIE	0	Oenothera biennis	3	FACU	Nt B-Forb	COMMON EVENING PRIMROSE
OENCLE	7	Oenothera clelandii	5	[UPL]	Nt B-Forb	SAND EVENING PRIMROSE
OSMCLO	3	Osmorhiza claytonii	4	FACU-	Nt P-Forb	HAIRY SWEET CICELY
OSMCIN	7	Osmunda cinnamomea	-3	FACW	Cryptogam	CINNAMON FERN
OSMRES	8	Osmunda r. spectabilis	-5	OBL	Cryptogam	ROYAL FERN
PANCAP	1	Panicum capillare	0	FAC	Nt A-Grass	OLD WITCH GRASS

PANLAT	5	Panicum latifolium	3	FACU	Nt P-Grass	BROAD-LEAVED PANIC GRASS
PANOLS	4	Panicum o. scribnerianum	3	[FACU]	Nt P-Grass	SCRIBNER'S PANIC GRASS
PANVIR	5	Panicum virgatum	-1	FAC+	Nt P-Grass	SWITCH GRASS
PARINT	8	Parthenium integrifolium	5	UPL	Nt P-Forb	WILD QUININE
PEDCAN	9	Pedicularis canadensis	2	FACU+	Nt P-Forb	WOOD BETONY
PHLGLI	8	Phlox glaberrima interior	-3	FACW	Nt P-Forb	MARSH PHLOX
PHLPIP	7	Phlox pilosa	1	FAC-	Nt P-Forb	SAND PRAIRIE PHLOX
PHRAUS	1	Phragmites australis	-4	FACW+	Nt P-Grass	COMMON REED
PLAMAJ	0	PLANTAGO MAJOR	-1	FAC+	Ad P-Forb	COMMON PLANTAIN
POAPRA	0	POA PRATENSIS	1	FAC-	Ad P-Grass	KENTUCKY BLUE GRASS
POLCAL	3	Polygonatum canaliculatum	3	FACU	Nt P-Forb	SMOOTH SOLOMON'S SEAL
POPDEL	2	Populus deltoides	-1	FAC+	Nt Tree	EASTERN COTTONWOOD
POPTRE	4	Populus tremuloides	0	FAC	Nt Tree	QUAKING ASPEN
POTSIS	4	Potentilla simplex	4	FACU-	Nt P-Forb	COMMON CINQUEFOIL
PREALB	5	Prenanthes alba	3	FACU	Nt P-Forb	LION'S FOOT
PREALT	8	Prenanthes altissima	3	FACU	Nt P-Forb	TALL WHITE LETTUCE
PRUSER	1	Prunus serotina	3	FACU	Nt Tree	WILD BLACK CHERRY
PRUVIR	3	Prunus virginiana	3	[FACU]	Nt Shrub	CHOKE CHERRY
PTEAQL	5	Pteridium a. latiusculum	3	FACU	Cryptogam	BRACKEN FERN
QUEBIC	6	Quercus bicolor	-4	FACW+	Nt Tree	SWAMP WHITE OAK
QUEVEL	6	Quercus velutina	5	UPL	Nt Tree	BLACK OAK
RHUCOL	6	Rhus c. latifolia	5	UPL	Nt Shrub	SHINING SUMAC
RHUTYP	1	Rhus typhina	5	UPL	Nt Tree	STAGHORN SUMAC
RIBCYN	5	Ribes cynosbati	5	UPL	Nt Shrub	PRICKLY WILD GOOSEBERRY
ROSCAR	5	Rosa carolina	4	FACU-	Nt Shrub	PASTURE ROSE
RUBALL	3	Rubus allegheniensis	2	FACU+	Nt Shrub	COMMON BLACKBERRY
RUBFLA	3	Rubus flagellaris	4	FACU-	Nt Shrub	COMMON DEWBERRY
RUBOCC	2	Rubus occidentalis	5	UPL	Nt Shrub	BLACK RASPBERRY
SALDIS	2	Salix discolor	-3	FACW	Nt Shrub	PUSSY WILLOW
SALHUM	6	Salix humilis	3	FACU	Nt Shrub	PRAIRIE WILLOW
SALINT	1	Salix interior	-5	OBL	Nt Shrub	SANDBAR WILLOW
SAMCAN	1	Sambucus canadensis	-2	FACW-	Nt Shrub	ELDERBERRY
SANGRE	2	Sanicula gregaria	-1	FAC+	Nt P-Forb	CLUSTERED BLACK SNAKEROOT
SAPOFF	0	SAPONARIA OFFICINALIS	3	FACU	Ad P-Forb	BOUNCING BET
SASALB	3	Sassafras albidum	3	FACU	Nt Tree	SASSAFRAS
SAXPEN	10	Saxifraga pensylvanica	-3	FACW	Nt P-Forb	SWAMP SAXIFRAGE
SCRLAN	5	Scrophularia lanceolata	-1	FAC+	Nt P-Forb	EARLY FIGWORT
SCRMAR	4	Scrophularia marilandica	4	FACU-	Nt P-Forb	LATE FIGWORT
SENPAU	6	Senecio pauperculus	-1	FAC+	Nt P-Forb	BALSAM RAGWORT
SETFAB	0	SETARIA FABERI	2	FACU+	Ad A-Grass	GIANT FOXTAIL
SETGLA	0	SETARIA GLAUCA	0	FAC	Ad A-Grass	YELLOW FOXTAIL
SILNOC	0	SILENE NOCTIFLORA	5	UPL	Ad A-Forb	NIGHT-FLOWERING CATCHFLY
SILSTE	6	Silene stellata	5	UPL	Nt P-Forb	STARRY CAMPION
SILINI	5	Silphium integrifolium	5	UPL	Nt P-Forb	ROSIN WEED
SMIRAC	3	Smilacina racemosa	3	FACU	Nt P-Forb	FEATHERY FALSE SOLOMON'S SEAL
SMISTE	5	Smilacina stellata	1	FAC-	Nt P-Forb	STARRY FALSE SOLOMON'S SEAL
SMIECI	5	Smilax ecirrhata	5	UPL	Nt P-Forb	UPRIGHT CARRION FLOWER
SMITAH	5	Smilax tamnoides hispida	5	UPL	Nt W-Vine	BRISTLY CAT BRIER
SOLALT	1	Solidago altissima	3	FACU	Nt P-Forb	TALL GOLDENROD
SOLCAN	1	Solidago canadensis	3	FACU	Nt P-Forb	CANADA GOLDENROD
SOLGIG	4	Solidago gigantea	-3	FACW	Nt P-Forb	LATE GOLDENROD
SOLGRN	3	Solidago g. nuttallii	0	[FAC]	Nt P-Forb	HAIRY GRASS-LEAVED GOLDENROD
SOLNEM	4	Solidago nemoralis	5	UPL	Nt P-Forb	OLD-FIELD GOLDENROD
SOLRIG	4	Solidago rigida	4	FACU-	Nt P-Forb	STIFF GOLDENROD
SOLSPE	7	Solidago speciosa	5	UPL	Nt P-Forb	SHOWY GOLDENROD
SORNUT	5	Sorghastrum nutans	2	FACU+	Nt P-Grass	INDIAN GRASS
SPAPEC	4	Spartina pectinata	-4	FACW+	Nt P-Grass	PRAIRIE CORD GRASS
SPIALB	7	Spiraea alba	-4	FACW+	Nt Shrub	MEADOWSWEET
SPOHET	10	Sporobolus heterolepis	4	FACU-	Nt P-Grass	PRAIRIE DROPSEED
STEMED	0	STELLARIA MEDIA	3	FACU	Ad A-Forb	COMMON CHICKWEED
STISPA	7	Stipa spartea	5	UPL	Nt P-Grass	PORCUPINE GRASS
TEUCAN	3	Teucrium canadense	-3	FACW	Nt P-Forb	GERMANDER
THADAD	5	Thalictrum dasycarpum	-2	FACW-	Nt P-Forb	PURPLE MEADOW RUE
THADIO	7	Thalictrum dioicum	2	FACU+	Nt P-Forb	EARLY MEADOW RUE
TRAOHI	2	Tradescantia ohiensis	2	FACU+	Nt P-Forb	COMMON SPIDERWORT
TRADUB	0	TRAGOPOGON DUBIUS	5	UPL	Ad B-Forb	SAND GOAT'S BEARD
TRAPRA	0	TRAGOPOGON PRATENSIS	5	UPL	Ad B-Forb	COMMON GOAT'S BEARD
ULMPUM	0	ULMUS PUMILA	5	UPL	Ad Tree	SIBERIAN ELM
VERTHA	0	VERBASCUM THAPSUS	5	UPL	Ad B-Forb	COMMON MULLEIN
VERSTR	4	Verbena stricta	5	UPL	Nt P-Forb	HOARY VERVAIN
VERURU	5	Verbena urticifolia	5	UPL	Nt P-Forb	HAIRY WHITE VERVAIN
VIBLEN	5	Viburnum lentago	-1	FAC+	Nt Shrub	NANNYBERRY
VIOSOR	3	Viola sororia	1	FAC-	Nt P-Forb	COMMON BLUE VIOLET

VITAES	7 Vitis aestivalis	3 FACU	Nt W-Vine	SUMMER GRAPE
VITRIP	2 Vitis riparia	-2 FACW-	Nt W-Vine	RIVERBANK GRAPE
ZIZAUR	7 Zizia aurea	-1 FAC+	Nt P-Forb	GOLDEN ALEXANDERS

No primary or secondary indicators of wetland hydrology were observed at any of the data points within Area 4a, failing the hydrology criterion.

The soil profiles at Data Points 8, 15 and 16 were classified as Morocco loamy fine sand. The profile from Data Point 8 is used here as a representative Morocco profile from Area 4a:

An A horizon of very dark grayish brown (10YR 3/2) sandy loam was found from 0 to 9 inches in depth. Below this, a Bw1 horizon of brown (10YR 4/3) loamy sand was observed from 9 to 11 inches in depth. Finally, a Bw2 horizon of yellowish brown (10YR 5/6) sand was found from 11 to 40 inches in depth. This horizon contained common faint dark yellowish brown (10 YR 4/6) redoximorphic features.

The soil profile at Data Point 10 was classified as Oakville fine sand. An A horizon of very dark grayish brown (10YR 3/2) loamy sand was found from 0 to 3 inches in depth. Below this, a Bw horizon of light yellowish brown (10YR 6/4) sand was observed from 3 to 26 inches in depth. Finally, a C horizon of very pale brown (10YR 7/4) sand was found from 26 to 29 inches in depth.

The soil profile at Data Point 12 was classified as Brems loamy sand. An A horizon of black (10YR 2/1) sandy loam was found from 0 to 9 inches in depth. Below this, a Bw1 horizon of dark yellowish brown (10YR 4/6) sand was observed from 9 to 11 inches in depth. Continuing downward, a Bw2 horizon of yellowish brown (10YR 5/4) sand was found from 11 to 17 inches in depth. Finally, a BC horizon of light brownish gray (10YR 6/2) sand was observed from 17 to 27 inches in depth.

The soil profiles at Data Points 13 and 17 were classified as Made Land, Orthents. The profile from Data Point 13 is used here as a representative Made Land, Orthents profile from Area 4a:

An A horizon of dark brown (10YR 3/3) sand was found from 0 to 10 inches in depth. Below this, a mixed fill horizon of brownish yellow (10YR 6/6) sand was observed from 10 to 27 inches in depth. This horizon contained a few faint dark yellowish brown (10YR 4/6) redoximorphic features, along with layers of mixed very dark grayish brown (10YR 3/2) and black (10YR 2/1) silty material.

None of the Data Points within Area 4a exhibits hydric soil field indicators, thereby failing the soils criterion.

None of the locations within Area 4a meets any of the wetland criteria, so Area 4a does not qualify as wetland.

Area 4b – Emergent Wetland
Data Points 9 and 11

Area 4b consists of a 12.40-acre wetland swale and large emergent wetland located on the southern half of Pilot Section 4 (Photos 18, 19 and 21) partially separated by a shallow dune. Since the swale and emergent wetland are connected by surface flow, via a low point in the southernmost dune, they are, in essence, one large wetland. The NWI map (Exhibit II) identifies this area as a seasonally flooded emergent wetland (PEMC). The dominant species are Purple Loosestrife, Narrow-leaved Cattail, Sawtooth Sunflower, and River Bulrush (*Scirpus fluviatilis*), Reed Canary Grass, Sawtooth Sunflower, and Blue Joint Grass. All of the dominant species are hydrophytic, thereby satisfying the vegetation criterion.

Despite dominance by non-native and low quality native species such as Purple Loosestrife, Narrow-leaved cattail, and Common Reed, several high quality native species were scattered throughout the understory forb layer. These species include Common Lake Sedge (*Carex lacustris*), Water Hemlock (*Cicuta maculata*), Swamp Thistle (*Cirsium muticum*), Northern Bugle Weed (*Lycopus uniflorus*), Sensitive Fern (*Onoclea sensibilis*), Arrow-leaved Tear-thumb (*Polygonum sagittatum*), and Marsh Skullcap (*Scutellaria epilobiifolia*). It is expected that many other high-quality natives are present within the understory forb layer, however, the wetland portion of the Pilot Section 4 dune and swale complex already exhibit high floristic diversity. Despite moderate to severe degradation (i.e., earthwork, hydrologic manipulation, or non-native colonization) to certain portions of Area 4b, this wetland exhibits high floristic quality (NMC = 4.80, FQI = 42.30). The floristic quality calculations and plant species inventory for Area 4b are provided below.

FLORISTIC QUALITY DATA						
78 NATIVE SPECIES	Native	78	94.0%	Adventive	5	6.0%
83 Total Species	Tree	4	4.8%	Tree	2	2.4%
4.8 NATIVE MEAN C	Shrub	4	4.8%	Shrub	1	1.2%
4.5 W/Adventives	W-Vine	1	1.2%	W-Vine	0	0.0%
42.3 NATIVE FQI	H-Vine	0	0.0%	H-Vine	0	0.0%
41.1 W/Adventives	P-Forb	43	51.8%	P-Forb	1	1.2%
-2.6 NATIVE MEAN W	B-Forb	2	2.4%	B-Forb	0	0.0%
-2.5 W/Adventives	A-Forb	6	7.2%	A-Forb	0	0.0%
AVG: Fac. Wetland	P-Grass	4	4.8%	P-Grass	1	1.2%
	A-Grass	0	0.0%	A-Grass	0	0.0%
	P-Sedge	7	8.4%	P-Sedge	0	0.0%
	A-Sedge	1	1.2%	A-Sedge	0	0.0%
	Cryptogam	6	7.2%			

ACRONYM	C	SCIENTIFIC NAME	W	WETNESS	PHYSIOGNOMY	COMMON NAME
ACERUB	7	Acer rubrum	0	FAC	Nt Tree	RED MAPLE
ACESAI	0	Acer saccharinum	-3	FACW	Nt Tree	SILVER MAPLE
AGAPUU	6	Agalinis purpurea	-3	FACW	Nt A-Forb	PURPLE FALSE FOXGLOVE
ALISUB	4	Alisma subcordatum	-5	OBL	Nt P-Forb	COMMON WATER PLANTAIN
AMBTRI	0	Ambrosia trifida	-1	FAC+	Nt A-Forb	GIANT RAGWEED
APOSIB	2	Apocynum sibiricum	-1	FAC+	Nt P-Forb	PRAIRIE INDIAN HEMP
ARTCAU	5	Artemisia caudata	5	UPL	Nt B-Forb	BEACH WORMWOOD
ASTNOV	4	Aster novae-angliae	-3	FACW	Nt P-Forb	NEW ENGLAND ASTER
ASTSIS	3	Aster simplex	-5	OBL	Nt P-Forb	PANICLED ASTER
CALCAN	3	Calamagrostis canadensis	-5	OBL	Nt P-Grass	BLUE JOINT GRASS
CALTPA	5	Caltha palustris	-5	OBL	Nt P-Forb	MARSH MARIGOLD
CXATHE	5	Carex atherodes	-5	OBL	Nt P-Sedge	HAIRY-LEAVED LAKE SEDGE
CXHAYD	6	Carex haydenii	-5	OBL	Nt P-Sedge	LONG-SCALED TUSSOCK SEDGE
CXLACU	6	Carex lacustris	-5	OBL	Nt P-Sedge	COMMON LAKE SEDGE
CXSTRI	5	Carex stricta	-5	OBL	Nt P-Sedge	COMMON TUSSOCK SEDGE
CICMAC	6	Cicuta maculata	-5	OBL	Nt P-Forb	WATER HEMLOCK
CIRMUT	10	Cirsium muticum	-5	OBL	Nt B-Forb	SWAMP THISTLE
CORTRP	5	Coreopsis tripteris	0	FAC	Nt P-Forb	TALL COREOPSIS
CRYCAN	2	Cryptotaenia canadensis	0	FAC	Nt P-Forb	HONEWORT

CYPRIV	4	Cyperus rivularis	-4	FACW+	Nt A-Sedge	BROOK NUT SEDGE
CYPCPU	10	Cypripedium c. pubescens	-1	[FAC+]	Nt P-Forb	LARGE YELLOW LADY'S SLIPPER
DRYTHP	6	Dryopteris t. pubescens	-5	[OBL]	Cryptogam	MARSH SHIELD FERN
ELEACI	2	Eleocharis acicularis	-5	OBL	Nt P-Sedge	NEEDLE SPIKE RUSH
ELEERY	2	Eleocharis erythropoda	-5	OBL	Nt P-Sedge	RED-ROOTED SPIKE RUSH
ELYVIR	4	Elymus virginicus	-2	FACW-	Nt P-Grass	VIRGINIA WILD RYE
EQUHYE	3	Equisetum hyemale	-2	FACW-	Cryptogam	TALL SCOURING RUSH
ERIPHI	4	Erigeron philadelphicus	-3	FACW	Nt P-Forb	MARSH FLEABANE
EUPALT	0	Eupatorium altissimum	3	[FACU]	Nt P-Forb	TALL BONESET
EUPPER	4	Eupatorium perfoliatum	-4	FACW+	Nt P-Forb	COMMON BONESET
GALBOR	7	Galium boreale	0	FAC	Nt P-Forb	NORTHERN BEDSTRAW
GALOBT	5	Galium obtusum	-4	FACW+	Nt P-Forb	WILD MADDER
GERMAC	4	Geranium maculatum	5	[UPL]	Nt P-Forb	WILD GERANIUM
HELGRO	2	Helianthus grosseserratus	-2	FACW-	Nt P-Forb	SAWTOOTH SUNFLOWER
HYPHIR	9	Hypoxis hirsuta	0	FAC	Nt P-Forb	YELLOW STAR GRASS
IMPCAP	3	Impatiens capensis	-3	FACW	Nt A-Forb	ORANGE JEWELWEED
IRIVIS	5	Iris virginica shrevei	-5	OBL	Nt P-Forb	BLUE FLAG
JUNACU	6	Juncus acuminatus	-5	OBL	Nt P-Forb	SHARP-FRUITED RUSH
JUNBRP	9	Juncus brachycephalus	-5	OBL	Nt P-Forb	SHORT-HEADED RUSH
JUNTOR	4	Juncus torreyi	-3	FACW	Nt P-Forb	TORREY'S RUSH
LILMIC	6	Lilium michiganense	-1	FAC+	Nt P-Forb	TURK'S CAP LILY
LONMAA	0	LONICERA MAACKII	5	UPL	Ad Shrub	AMUR HONEYSUCKLE
LYCUNI	7	Lycopus uniflorus	-5	OBL	Nt P-Forb	NORTHERN BUGLE WEED
LYTSAL	0	LYTHRUM SALICARIA	-5	OBL	Ad P-Forb	PURPLE LOOSESTRIFE
ONOSEN	8	Onoclea sensibilis	-3	FACW	Cryptogam	SENSITIVE FERN
OSMCIN	7	Osmunda cinnamomea	-3	FACW	Cryptogam	CINNAMON FERN
OSMRES	8	Osmunda r. spectabilis	-5	OBL	Cryptogam	ROYAL FERN
OXYRIG	7	Oxypolis rigidior	-5	OBL	Nt P-Forb	COWBANE
PANVIR	5	Panicum virgatum	-1	FAC+	Nt P-Grass	SWITCH GRASS
PEDLAN	9	Pedicularis lanceolata	-5	[OBL]	Nt P-Forb	FEN BETONY
PHAARU	0	PHALARIS ARUNDINACEA	-4	FACW+	Ad P-Grass	REED CANARY GRASS
PHRAUS	1	Phragmites australis	-4	FACW+	Nt P-Grass	COMMON REED
POLAMS	4	Polygonum a. stipulaceum	-5	OBL	Nt P-Forb	WATER KNOTWEED
POLLAP	0	Polygonum lapathifolium	-4	FACW+	Nt A-Forb	HEARTSEASE
POLSAG	8	Polygonum sagittatum	-5	OBL	Nt A-Forb	ARROW-LEAVED TEAR-THUMB
POPALB	0	POPULUS ALBA	5	UPL	Ad Tree	WHITE POPLAR
POPDEL	2	Populus deltoides	-1	FAC+	Nt Tree	EASTERN COTTONWOOD
POPTRE	4	Populus tremuloides	0	FAC	Nt Tree	QUAKING ASPEN
PTEAQL	5	Pteridium a. latiusculum	3	FACU	Cryptogam	BRACKEN FERN
PYCTEN	7	Pycnanthemum tenuifolium	0	FAC	Nt P-Forb	SLENDER MOUNTAIN MINT
PYCVIR	5	Pycnanthemum virginianum	-4	FACW+	Nt P-Forb	COMMON MOUNTAIN MINT
RANABO	0	Ranunculus abortivus	-2	FACW-	Nt A-Forb	SMALL-FLOWERED BUTTERCUP
RHUCOL	6	Rhus copallina latifolia	5	UPL	Nt Shrub	SHINING SUMAC
RUBHIS	9	Rubus hispidus	-3	FACW	Nt Shrub	SWAMP DEWBERRY
RUMORB	8	Rumex orbiculatus	-5	OBL	Nt P-Forb	GREAT WATER DOCK
SALBAB	0	SALIX BABYLONICA	-3	FACW	Ad Tree	WEEPING WILLOW
SALDIS	2	Salix discolor	-3	FACW	Nt Shrub	PUSSY WILLOW
SAMCAN	1	Sambucus canadensis	-2	FACW-	Nt Shrub	ELDERBERRY
SAXPEN	10	Saxifraga pensylvanica	-3	FACW	Nt P-Forb	SWAMP SAXIFRAGE
SCIFLU	4	Scirpus fluviatilis	-5	OBL	Nt P-Sedge	RIVER BULRUSH
SCUEPI	5	Scutellaria epilobiifolia	-5	OBL	Nt P-Forb	MARSH SKULLCAP
SENPAU	6	Senecio pauperculus	-1	FAC+	Nt P-Forb	BALSAM RAGWORT
SISALB	7	Sisyrinchium albidum	3	FACU	Nt P-Forb	COMMON BLUE-EYED GRASS
SIUSUA	7	Sium suave	-5	OBL	Nt P-Forb	TALL WATER PARSNIP
SOLGIG	4	Solidago gigantea	-3	FACW	Nt P-Forb	LATE GOLDENROD
SOLGRN	3	Solidago g. nuttallii	0	[FAC]	Nt P-Forb	HAIRY GRASS-LEAVED GOLDENROD
SOLNEM	4	Solidago nemoralis	5	UPL	Nt P-Forb	OLD-FIELD GOLDENROD
STATET	8	Stachys tenuifolia	-3	[FACW]	Nt P-Forb	SMOOTH HEDGE NETTLE
STATEH	5	Stachys t. hispida	-4	FACW+	Nt P-Forb	MARSH HEDGE NETTLE
TYPANG	1	Typha angustifolia	-5	OBL	Nt P-Forb	NARROW-LEAVED CATTAIL
TYPLAT	1	Typha latifolia	-5	OBL	Nt P-Forb	BROAD-LEAVED CATTAIL
VERHAS	4	Verbena hastata	-4	FACW+	Nt P-Forb	BLUE VERVAIN
VITRIP	2	Vitis riparia	-2	FACW-	Nt W-Vine	RIVERBANK GRAPE
ZIZAUR	7	Zizia aurea	-1	FAC+	Nt P-Forb	GOLDEN ALEXANDERS

Primary and secondary indicators of wetland hydrology were observed at both locations within Area 4b, satisfying the hydrology criterion.

The soil at Data Point 9 was classified as Adrian muck, taxadjunct. An A horizon of black (10YR 2/1) mucky loam was found from 0 to 20 inches in depth. This horizon contained oxidized root channels in the upper 12 inches of the horizon. Below this, a C horizon of grayish brown (10YR 5/2) sand was observed from 20 to 28 inches in depth. This horizon contained common distinct dark yellowish brown (10YR 4/6) redoximorphic features.

The soil profile at Data Point 11 was classified as Granby loamy fine sand. An A horizon of black (10YR 2/1) loam was found from 0 to 8 inches in depth. Below this, a Bg horizon of grayish brown (10YR 5/2) sand was observed from 8 to 27 inches in depth. This horizon contained common prominent dark gray (10YR 4/1) redoximorphic features and black (10YR 2/1) organic matter stains along some sand grains.

The soil profile at Data Point 9 exhibits hydric soil field indicator F1, *Loamy Mucky Mineral*, and satisfies the soils criterion. The soil profile at Data Point 11, while not exhibiting any hydric soil field indicators, is classified taxonomically as being poorly drained, and the presence of redoximorphic features within the profile and gray subsoil colors indicates that the upper portion of the profile is saturated for at least two weeks during the growing season, thereby satisfying the soils criterion.

All three wetland criteria are satisfied at Data Points 9 and 11, and Area 4b qualifies as wetland. Due to its closed depressional nature Area 4b is likely to be considered an isolated wetland, however, it is also part of the only remnant dune and swale complex found on Pilot Section 4. Therefore, while the wetland may not be under ACOE jurisdiction, discharges to this habitat complex may be regulated by the DEM.

Area 4c – Emergent Wetland
Data Point 14

Area 4c is a borrow pit centrally located along the northern property boundary of Pilot Section 4 (Photos 24, 27 and 28) that contains 0.86 acre of emergent wetland. Approximately 50% of Area 4c is unvegetated due to frequent disturbance from ATV traffic. A network of ATV trails crosses a majority of the northern half of Pilot Section 4 and a much smaller portion of the southern half. One data point was taken within a vegetated portion of Area 4c. The dominant plant species are Common Reed, Purple Loosestrife, Tall Scouring Rush, Slender Flatsedge (*Cyperus filiculmis*), Pussy Willow (*Salix discolor*), and Purple False Foxglove (*Agalinis purpurea*). Since more than 50% of the dominant species are hydrophytic, the vegetation criterion is satisfied. Despite moderate to severe degradation (i.e., earthwork, hydrologic manipulation, or non-native colonization) to certain portions of Area 4c, this wetland exhibits high floristic quality (NMC = 3.70, FQI = 20.50). The floristic quality calculations and plant species inventory for Area 4c are provided below.

FLORISTIC QUALITY DATA	Native	31	81.6%	Adventive	7	18.4%
31 NATIVE SPECIES	Tree	2	5.3%	Tree	0	0.0%
38 Total Species	Shrub	3	7.9%	Shrub	0	0.0%
3.7 NATIVE MEAN C	W-Vine	1	2.6%	W-Vine	1	2.6%
3.0 W/Adventives	H-Vine	1	2.6%	H-Vine	0	0.0%
20.5 NATIVE FQI	P-Forb	14	36.8%	P-Forb	4	10.5%
18.5 W/Adventives	B-Forb	0	0.0%	B-Forb	2	5.3%
-1.9 NATIVE MEAN W	A-Forb	1	2.6%	A-Forb	0	0.0%
-1.3 W/Adventives	P-Grass	2	5.3%	P-Grass	0	0.0%

AVG: Fac. Wetland (-)	A-Grass	0	0.0%	A-Grass	0	0.0%
	P-Sedge	3	7.9%	P-Sedge	0	0.0%
	A-Sedge	0	0.0%	A-Sedge	0	0.0%
	Cryptogam	4	10.5%			

ACRONYM	C	SCIENTIFIC NAME	W	WETNESS	PHYSIOGNOMY	COMMON NAME
ACENEG	0	Acer negundo	-2	FACW-	Nt Tree	BOX ELDER
AGAPUU	6	Agalinis purpurea	-3	FACW	Nt A-Forb	PURPLE FALSE FOXGLOVE
APIAME	7	Apios americana	-3	FACW	Nt P-Forb	GROUND NUT
ASTNOV	4	Aster novae-angliae	-3	FACW	Nt P-Forb	NEW ENGLAND ASTER
ASTPIL	0	Aster pilosus	2	FACU+	Nt P-Forb	HAIRY ASTER
CORRAC	1	Cornus racemosa	-2	FACW-	Nt Shrub	GRAY DOGWOOD
CRYCAN	2	Cryptotaenia canadensis	0	FAC	Nt P-Forb	HONEWORT
CYPFIL	5	Cyperus filiculmis	4	FACU-	Nt P-Sedge	SLENDER SAND SEDGE
CYPSCH	5	Cyperus schweinitzii	5	[UPL]	Nt P-Sedge	ROUGH SAND SEDGE
DAUCAR	0	DAUCUS CAROTA	5	UPL	Ad B-Forb	QUEEN ANNE'S LACE
EQUARV	0	Equisetum arvense	0	FAC	Cryptogam	HORSETAIL
EQUHYE	3	Equisetum hyemale	-2	FACW-	Cryptogam	TALL SCOURING RUSH
EUPMAM	4	Eupatorium maculatum	-5	OBL	Nt P-Forb	SPOTTED JOE PYE WEED
EUPPER	4	Eupatorium perfoliatum	-4	FACW+	Nt P-Forb	COMMON BONESET
JUNDUD	4	Juncus dudleyi	0	[FAC]	Nt P-Forb	DUDLEY'S RUSH
JUNTEN	0	Juncus tenuis	2	[FACU+]	Nt P-Forb	PATH RUSH
JUNTOR	4	Juncus torreyi	-3	FACW	Nt P-Forb	TORREY'S RUSH
LYCAME	5	Lycopus americanus	-5	OBL	Nt P-Forb	COMMON WATER HOREHOUND
LYTALA	7	Lythrum alatum	-5	OBL	Nt P-Forb	WINGED LOOSESTRIFE
LYTSAL	0	LYTHRUM SALICARIA	-5	OBL	Ad P-Forb	PURPLE LOOSESTRIFE
MELLOF	0	MELILOTUS OFFICINALIS	3	FACU	Ad B-Forb	YELLOW SWEET CLOVER
ONOSEN	8	Onoclea sensibilis	-3	FACW	Cryptogam	SENSITIVE FERN
OSMCIN	7	Osmunda cinnamomea	-3	FACW	Cryptogam	CINNAMON FERN
PANVIR	5	Panicum virgatum	-1	FAC+	Nt P-Grass	SWITCH GRASS
PEDLAN	9	Pedicularis lanceolata	-5	[OBL]	Nt P-Forb	FEN BETONY
PHRAUS	1	Phragmites australis	-4	FACW+	Nt P-Grass	COMMON REED
PHYVIV	6	Physostegia virginiana	-5	[OBL]	Nt P-Forb	OBEDIENT PLANT
PLAMAJ	0	PLANTAGO MAJOR	-1	FAC+	Ad P-Forb	COMMON PLANTAIN
POLSCN	1	Polygonum scandens	0	FAC	Nt H-Vine	CLIMBING FALSE BUCKWHEAT
POPDEL	2	Populus deltoides	-1	FAC+	Nt Tree	EASTERN COTTONWOOD
PRUVUV	0	PRUNELLA VULGARIS	5	[UPL]	Ad P-Forb	LAWN PRUNELLA
SALDIS	2	Salix discolor	-3	FACW	Nt Shrub	PUSSY WILLOW
SAMCAN	1	Sambucus canadensis	-2	FACW-	Nt Shrub	ELDERBERRY
SCIPUN	5	Scirpus pungens	-5	OBL	Nt P-Sedge	CHAIRMAKER'S RUSH
SOLDUL	0	SOLANUM DULCAMARA	0	FAC	Ad W-Vine	BITTERSWEET NIGHTSHADE
SOLGRG	4	Solidago graminifolia	-2	FACW-	Nt P-Forb	COMMON GRASS-LEAVED GOLDENROD
SOLSEM	0	SOLIDAGO SEMPERVIRENS	3	[FACU]	Ad P-Forb	SEASIDE GOLDENROD
VITRIP	2	Vitis riparia	-2	FACW-	Nt W-Vine	RIVERBANK GRAPE

Soil saturation was observed at a depth of 5 inches below the soil surface, which satisfies the hydrology criterion. In addition the presence of oxidized root channels within the upper 12 inches of soil and a positive FAC-neutral test reinforce the fact that wetland hydrology is present.

The soil at Data Point 14 was classified as a poorly drained Made Land (Aquents) mucky loamy sand. The A horizon from 0 to 2 inches consisted of a black (2.5Y 2/1) loamy sand with few prominent dark brown (7.5YR 3/3 and ¾) redoximorphic features and many fine roots. The ACg horizon from 2 to 4 inches consisted of a very dark gray (10YR 3/1) loamy sand, with few prominent dark yellowish brown (10YR 3/6) redoximorphic features. This horizon was stratified with dark gray (2.5Y 4/1) and light brownish gray (2.5Y 6/2) materials. The Cg1 horizon from 4 to 11 inches consisted of a dark gray (2.5Y 4/1) loamy sand with few prominent dark yellowish brown (10YR 4/6) redoximorphic features. The Cg2 horizon from 11 to 20 inches consisted of a gray (2.5Y 5/1) loamy sand, with few prominent dark yellowish brown (10YR 4/6) redoximorphic features. The Cg3 horizon from 20 to 28 inches consisted of a gray (5Y 4/1) loamy sand, with common prominent dark yellowish brown (10YR 4/6) redoximorphic features and few distinct light olive brown (2.5Y 5/4) redoximorphic features. This soil profile exhibits

hydric soil field indicator F1, *Loamy Mucky Material* and F6, *Redox Dark Surface*, satisfying the soils criterion.

All three wetland criteria are satisfied, so Area 4c qualifies as wetland. Because of its location in an old borrow pit this wetland is likely to be considered isolated and may not be under ACOE jurisdiction. However, discharges to the wetland are likely to be regulated by the DEM.

ENDANGERED AND THREATENED SPECIES

A request for records of endangered or threatened species records or Indiana high quality natural communities and natural areas in the vicinity of the study area was submitted to the Indiana Department of Natural Resources (INDNR) and to the US Fish and Wildlife Service, Region 3 (FWS) on February 5, 2002. Responses from these agencies were received by V3 on February 18 and March 7, 2002, respectively, indicating that eight listed species, six of which are listed both at the state and federal levels, are potentially located within or near the study area. A summary of this information is provided in Table 2. This table and copies of the agency correspondence are included in Appendix IV.

During the initial field investigation on January 11 and 14, 2002, the pilot sections were visually surveyed in an informal way for potential endangered or threatened species or their habitat. Accordingly, it was determined that Pilot Sections 1 and 4 have the highest habitat potential for listed species, although no listed plants or animals were observed at that time. These two sites retain moderate to poor quality dune or dune and swale habitat. Other sites investigated are heavily disturbed or fragmented and are unlikely to shelter listed species.

Because of the potential for endangered or threatened species, a more intensive on-site survey was conducted on May 28, 2002, to further evaluate habitat and attempt to locate populations of listed species indicated as being near the project area by the agencies. All plants and wildlife observed were recorded and habitats suitable for the species in Table 2 were investigated thoroughly in an attempt to locate extant populations and to evaluate the habitat quality. This investigation did not locate any listed species. However, suitable habitat for five species is present, mainly in Pilot Sections 1 and 4. These are: Mudpuppy (Pilot Section 5 AKA the J-pit), Karner Blue (based on the presence of Lupine in Pilot Sections 1 and 4, a small area on fill material in Pilot Section 2, and known populations within 0.5 mile), Franklin's Ground Squirrel (likely present in Pilot Section 4, Pilot Section 1 possible, but less likely) and Bush Honeysuckle (Pilot Section 4, based primarily on the presence of known associates - Bracken Fern, Wild Sarsaparilla, Sassafras, and Black Oak. In addition, rare savanna habitat is present in Pilot Sections 1 and 4 and in a very small portion of the southwestern corner of Pilot Section 3. Because this latter area is sandwiched between the large wetland in the southern half of Pilot Section 3 and 23rd Avenue it would likely be preserved. Since suitable habitat is available, and unless direct and indirect impacts to Pilot Sections can be avoided, further consultation with the IDNR Division of Nature Preserves, IDNR Division of Fish and Wildlife, and the US Fish and Wildlife (USFWS) may be warranted.

All plants and wildlife observed during the site visits are tabulated by pilot section in Appendix IV.

BASELINE ECOLOGICAL ASSESSMENT

The Risk-Integrated System of Closure (RISC) was developed in 1994 by the Indiana Department of Environmental Management (DEM) to bring all its cleanup programs under a uniform set of policies to improve consistency. RISC is a voluntary guidance policy that provides a framework within which the laws and rules governing environmental remediation of sites in Indiana.

Under RISC, three areas are considered especially sensitive to contamination:

- Geologically susceptible areas
- Wellhead protection areas
- Ecologically susceptible areas

The latter type represents most of the subject properties and was the focus of a process under RISC, known as Susceptible Areas Evaluation, to evaluate the need for ecological cleanup. These areas are considered susceptible to contamination based on the unpredictable transport of pollutants, the exceptional ecological value of these areas, and the potential for increased human or ecological risk ensuing from contamination. Ecologically susceptible areas require consideration of contamination effects beyond those that affect humans. Some examples of ecologically susceptible areas include National and state parks, designated nature preserves and refuges, critical habitats for endangered, threatened species, or other sensitive species, prairie areas, dune and swale areas, surface waters of the state including wetlands or recharge areas, riparian habitats, breeding habitat for birds, mammals, retiles, amphibians or other wildlife, nursery habitats, overwintering habitats for migratory species, and other designated critical resource areas.

Four wetlands totaling approximately 18.27 acres are present within the 215-acre project area. In addition to the wetlands, a sand and gravel quarry, Black Oak savanna, dune and swale habitat, and old dune habitat are present. The wetlands generally are dominated by low-quality invasive vegetation, such as Common Reed (*Phragmites australis*), Purple Loosestrife (*Lythrum salicaria*), Reed Canary Grass (*Phalaris arundinacea*), and Narrow-leaved Cattail (*Typha angustifolia*), but some wetlands have a moderate to high potential for high-quality and rare species and may in fact sustain some of these species at present.

Pilot Section 1 does not contain any jurisdictional wetland areas, however, it does contain Black Oak savanna on remnant sand dunes. Pilot Section 3 has an approximately 6.39-acre emergent wetland and Black Oak savanna habitat complex in its southern part. Pilot Section 4 has an approximately 12.40-acre emergent wetland located in the southern half of the site. This large emergent wetland is partially surrounded by Black Oak savanna on higher remnant dunes, making it the largest remnant dune and swale complex identified during this investigation. The overall size of the dune and swale complex is approximately 18.00 acres and encompasses the southern half of Pilot Section 4, as defined by a fence that crosses the property. The northern half of Pilot Section 4 contains leveled dunes and a sand pit, but no intact dune and swale features. On September 3, 2003, the sand pit was re-evaluated which resulted in the addition of a 0.86-acre emergent wetland on the northern half of Pilot Section 4. The J-Pit consists of an

approximately 114.00-acre sand and gravel quarry maintained by pumping. Approximately thirty percent of the quarry is vegetated, primarily with Common Reed, while the remaining seventy percent consists of open water. Several other plant species were observed in limited abundance and distribution, but few would be considered high-quality or conservative species. These species are Narrow-leaved Cattail, Purple Loosestrife, Great Bulrush (*Scirpus validus*), Chairmaker's Rush (*Scirpus pungens*), Cocklebur (*Xanthium strumarium*), and Torrey's Rush (*Juncus torreyi*). Most of the open water portion of the quarry is inundated with a few inches of standing water (ranging from 1 to 5 inches), but several deeper areas appear to have been excavated to provide positive drainage within the quarry. Water level in the quarry may be partially dependent on functioning pumps, which remove excess groundwater from the surrounding region. However, the exposed shoreline during low water periods may provide suitable habitat for a variety of shorebirds.

Pilot Sections 1, 2, and 3 appear to have been the most severely affected by past human activities. The northern half of Pilot Section 4 has apparently been partially mined for an unknown purpose, leaving a shallow pit that retains water extended periods and was determined to be wetland (Area 4c). Pilot Section 1 abuts a former junkyard, and is probably at the highest risk for contaminants, but no suspected sources or indication of past contamination was observed. Pilot Section 2 was subdivided and partially developed with the addition of pavement, but was not completed for unknown reasons. The only contemporary large-scale source for potential contaminants is a landfill located east of Pilot Section 5 (AKA the "J-pit"). Because of landfill requirements and precautions against the escape of potential environmental toxins, it seems unlikely that contaminants enter the subject properties from this source.

Because substantial vegetative growth continues at each of the pilot sections, including some high-quality, habitat-specific, or rare species, it appears that pollution is not a factor influencing these properties. In similar fashion, wildlife use of these sites does not appear to be significantly affected by past or present land use activities; although some species may have been extirpated by ecological changes resulting from sand or gravel mining or other land uses, there do not appear to be persistent effects from past or present contamination. Even though it seems likely that some species now listed as endangered, threatened or special concern may once have been present, their absence now is not directly or indirectly related to contamination of the subject properties, but is more likely to be a result of habitat modification or degradation from non-hazardous sources, such as road salt or grading. Thus, while some of the subject properties, notably Pilot Sections 1 and 4, remain ecologically significant, cleanup of past pollution apparently is not required.

Table 1. Wetland Data Point Summary of Areas Investigated for the J-Pit Redevelopment Project.

Pilot Section	Data Point	Vegetation	Hydrology	Soils	Wetland?
1	1				N
1	2				N
1	3				N
1	4				N
2a	5				N
2a	7			X	N
2b	6	X	X	X	**Y**
3a	18	X			N
3a	19				N
3a	21				N
3b	22				N
3c	20	X	X	X	**Y**
3c	23	X	X	X	**Y**
4a	8				N
4a	10				N
4a	12				N
4a	13				N
4a	15	X			N
4a	16				N
4a	17				N
4b	9	X	X	X	**Y**
4b	11	X	X	X	**Y**
4c	14	X	X	X	**Y**

REFERENCES CITED

Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1. U.S. Army Corps of Engineers, Washington, D.C.

Soil Survey of Lake County, Indiana. 1972. U.S. Government Printing Office, Washington, D.C.

Swink, F. and G. Wilhelm. 1994. Plants of the Chicago Region. 4th Edition. Indianapolis: Indiana Academy of Science.

United States Department of Agriculture. 1991. Hydric Soils of the United States. 3rd Edition. Miscellaneous Publication Number 1491.

APPENDIX I:

WETLAND DELINEATION DATA FORMS

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	J-Pit Redevelopment Project	**Project No:** 01210.w21	**Date:** 11-Jan-2002
Applicant/Owner:	City of Gary (DOEA)		**County:** Lake
Investigators:	Marc Wojtczak, Neil Molstad, Tom Hintz		**State:** Indiana
			Plot ID: 1

Do Normal Circumstances exist on the site?	(Yes) No	**Community ID:** Upland
Is the site significantly disturbed (Atypical Situation:)?	Yes (No)	**Transect ID:** Area 1
Is the area a potential Problem Area?	Yes (No)	**Field Location:**
(If needed, explain on the reverse side)		Data Point 1

VEGETATION **(USFWS Region No. 3, Sub-Region, Chicago Region (S&W))**

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicator
Lonicera tatarica	Shrub	FACU*	*Osmorhiza claytonii*	Forb	FACU-
Honeysuckle,Tartarian			Sweetcicely,Hairy		
Quercus velutina	Tree	UPL	*Sanicula gregaria*	Forb	FAC+
Black Oak			Black-Snakeroot,Clustered		
Sassafras albidum	Tree	FACU			
Sassafras					

Percent of Dominant Species that are OBL, FACW or FAC: (excluding FAC-) 1/5 = 20.00%

FAC Neutral: 0/4 = 0.00%

Remarks:
Less than 50% of the dominant species are hydrophytic, so the vegetation criterion is not satisfied.

HYDROLOGY

NO **Recorded Data(Describe in Remarks):**
- N/A **Stream, Lake or Tide Gauge**
- N/A **Aerial Photographs**
- N/A **Other**

YES **No Recorded Data**

Field Observations

Depth of Surface Water:	N/A *(in.)*
Depth to Free Water in Pit:	N/A *(in.)*
Depth to Saturated Soil:	> 34 *(in.)*

Wetland Hydrology Indicators

Primary Indicators
- NO **Inundated**
- NO **Saturated in Upper 12 Inches**
- NO **Water Marks**
- NO **Drift Lines**
- NO **Sediment Deposits**
- NO **Drainage Patterns in Wetlands**

Secondary Indicators
- NO **Oxidized Root Channels in Upper 12 Inches**
- NO **Water-Stained Leaves**
- NO **Local Soil Survey Data**
- NO **FAC-Neutral Test**
- NO **Other(Explain in Remarks)**

Remarks:
Saturated soil was not observed to a depth of 34 inches. This depth is too great to satisfy the hydrology criterion.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	J-Pit Redevelopment Project	**Project No:** 01210.w21	**Date:** 11-Jan-2002
Applicant/Owner:	City of Gary (DOEA)		**County:** Lake
Investigators:	Marc Wojtczak, Neil Molstad, Tom Hintz		**State:** Indiana
			Plot ID: 1

SOILS

Map Unit Name (Series and Phase): Morocco loamy fine sand
Map Symbol: 501 **Drainage Class:** Somewhat poorly drained **Mapped Hydric Inclusion?**
Taxonomy (Subgroup): Aquic Udipsamments **Field Observations Confirm Mapped Type?** Yes (No)
Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast		Texture, Concretions, Structure, etc
0 - 3	A	10YR3/2	N/A	N/A	N/A	Sand
3 - 5	Bw1	10YR6/2	N/A	N/A	N/A	Sand
5 - 10	Bw2	10YR6/3	10YR6/4	Common	Faint	Sand
10 - 34	Bw3	10YR7/3	10YR4/6	Few	Distinct	Sand

Hydric Soil Indicators:

NO **Histosol**	NO **Concretions**
NO **Histic Epipedon**	NO **High Organic Content in Surface Layer in Sandy Soils**
NO **Sulfidic Odor**	NO **Organic Streaking in Sandy Soils**
NO **Aquic Moisture Regime**	NO **Listed on Local Hydric Soils List**
NO **Reducing Conditions**	NO **Listed on National Hydric Soils List**
NO **Gleyed or Low Chroma Colors**	NO **Other (Explain in Remarks)**

Remarks:
Hydric indicators were not observed, so the soils criterion is not satisfied.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes (No)	Is the Sampling Point within the Wetland? Yes (No)
Wetland Hydrology Present?	Yes (No)	
Hydric Soils Present?	Yes (No)	

Remarks:
This location fails all three criteria and does not qualify as wetland.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	J-Pit Redevelopment Project	**Project No:** 01210.w21	**Date:** 11-Jan-2002
Applicant/Owner:	City of Gary (DOEA)		**County:** Lake
Investigators:	Marc Wojtczak, Neil Molstad, Tom Hintz		**State:** Indiana
			Plot ID: 2

Do Normal Circumstances exist on the site?	(Yes) No	**Community ID:** Upland
Is the site significantly disturbed (Atypical Situation:)?	Yes (No)	**Transect ID:** Area 1
Is the area a potential Problem Area?	Yes (No)	**Field Location:**
(If needed, explain on the reverse side)		Data Point 2

VEGETATION **(USFWS Region No. 3, Sub-Region, Chicago Region (S&W))**

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicator
Glechoma hederacea	Forb	FACU	*Osmorhiza claytonii*	Forb	FACU-
Creeping Charlie			Sweetcicely,Hairy		
Prunus serotina	Tree	FACU	*Vitis riparia*	Vine	FACW-
Cherry,Black			Grape,River-Bank		
Lonicera tatarica	Shrub	FACU*			
Honeysuckle,Tartarian					

Percent of Dominant Species that are OBL, FACW or FAC: (excluding FAC-) 1/5 = 20.00%

FAC Neutral: 1/5 = 20.00%

Remarks:
Less than 50% of the dominant species are hydrophytic, so the vegetation criterion is not satisfied.

HYDROLOGY

NO **Recorded Data(Describe in Remarks):**
- N/A **Stream, Lake or Tide Gauge**
- N/A **Aerial Photographs**
- N/A **Other**

YES **No Recorded Data**

Field Observations

Depth of Surface Water:	N/A *(in.)*
Depth to Free Water in Pit:	N/A *(in.)*
Depth to Saturated Soil:	> 21 *(in.)*

Wetland Hydrology Indicators

Primary Indicators
- NO **Inundated**
- NO **Saturated in Upper 12 Inches**
- NO **Water Marks**
- NO **Drift Lines**
- NO **Sediment Deposits**
- NO **Drainage Patterns in Wetlands**

Secondary Indicators
- NO **Oxidized Root Channels in Upper 12 Inches**
- NO **Water-Stained Leaves**
- NO **Local Soil Survey Data**
- NO **FAC-Neutral Test**
- NO **Other(Explain in Remarks)**

Remarks:
Saturated soil was not observed to a depth of 21 inches. This depth is too great to satisfy the hydrology criterion.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: J-Pit Redevelopment Project	**Project No:** 01210.w21	**Date:** 11-Jan-2002
Applicant/Owner: City of Gary (DOEA)		**County:** Lake
Investigators: Marc Wojtczak, Neil Molstad, Tom Hintz		**State:** Indiana
		Plot ID: 2

SOILS

Map Unit Name (Series and Phase): Morocco Loamy Fine Sand, Taxadjunct
Map Symbol: 501t **Drainage Class:** Somewhat poorly drained **Mapped Hydric Inclusion?**
Taxonomy (Subgroup): Aquic Udipsamments **Field Observations Confirm Mapped Type?** Yes (No)
Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast		Texture, Concretions, Structure, etc
0 - 5	A	10YR2/1	N/A	N/A	N/A	Loam
5 - 7	Bw1	7.5YR4/6	N/A	N/A	N/A	Sand
7 - 21	Bw2	10YR5/4	10YR4/6	Common	Distinct	Sand
21+	BC	10YR7/3	N/A	N/A	N/A	Sand

Hydric Soil Indicators:

NO **Histosol**	NO **Concretions**
NO **Histic Epipedon**	NO **High Organic Content in Surface Layer in Sandy Soils**
NO **Sulfidic Odor**	NO **Organic Streaking in Sandy Soils**
NO **Aquic Moisture Regime**	NO **Listed on Local Hydric Soils List**
NO **Reducing Conditions**	NO **Listed on National Hydric Soils List**
NO **Gleyed or Low Chroma Colors**	NO **Other (Explain in Remarks)**

Remarks:
Hydric indicators were not observed, so the soil criterion is not satisfied

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes (No)	Is the Sampling Point within the Wetland? Yes (No)
Wetland Hydrology Present?	Yes (No)	
Hydric Soils Present?	Yes (No)	

Remarks:
This location fails all three criteria and does not qualify as wetland.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: J-Pit Redevelopment Project	**Project No:** 01210.w21	**Date:** 11-Jan-2002
Applicant/Owner: City of Gary (DOEA)		**County:** Lake
Investigators: Marc Wojtczak, Neil Molstad, Tom Hintz		**State:** Indiana
		Plot ID: 3

Do Normal Circumstances exist on the site?	(Yes) No	**Community ID:** Upland
Is the site significantly disturbed (Atypical Situation:)?	Yes (No)	**Transect ID:** Area 1
Is the area a potential Problem Area?	Yes (No)	**Field Location:**
(If needed, explain on the reverse side)		Data Point 3

VEGETATION **(USFWS Region No. 3, Sub-Region, Chicago Region (S&W))**

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicator
Sassafras albidum	Tree	FACU	*Osmorhiza claytonii*	Forb	FACU-
Sassafras			Sweetcicely,Hairy		
Quercus velutina	Tree	UPL	*Lonicera tatarica*	Shrub	FACU*
Black Oak			Honeysuckle,Tartarian		

Percent of Dominant Species that are OBL, FACW or FAC: (excluding FAC-) 0/4 = 0.00%

FAC Neutral: 0/4 = 0.00%

Remarks:
None of the dominant species are hydrophytic, so the vegetation criterion is not satisfied.

HYDROLOGY

NO **Recorded Data(Describe in Remarks):**
- N/A **Stream, Lake or Tide Gauge**
- N/A **Aerial Photographs**
- N/A **Other**

YES **No Recorded Data**

Field Observations

Depth of Surface Water:	N/A *(in.)*
Depth to Free Water in Pit:	N/A *(in.)*
Depth to Saturated Soil:	> 28 *(in.)*

Wetland Hydrology Indicators

Primary Indicators
- NO **Inundated**
- NO **Saturated in Upper 12 Inches**
- NO **Water Marks**
- NO **Drift Lines**
- NO **Sediment Deposits**
- NO **Drainage Patterns in Wetlands**

Secondary Indicators
- NO **Oxidized Root Channels in Upper 12 Inches**
- NO **Water-Stained Leaves**
- NO **Local Soil Survey Data**
- NO **FAC-Neutral Test**
- NO **Other(Explain in Remarks)**

Remarks:
Saturated soil was not observed to a depth of 28 inches. This depth is too great to satisfy the hydrology criterion.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	J-Pit Redevelopment Project	**Project No:** 01210.w21	**Date:** 11-Jan-2002
Applicant/Owner:	City of Gary (DOEA)		**County:** Lake
Investigators:	Marc Wojtczak, Neil Molstad, Tom Hintz		**State:** Indiana
			Plot ID: 3

SOILS

Map Unit Name (Series and Phase): Oakville Fine Sand
Map Symbol: 741 **Drainage Class:** Excessively drained **Mapped Hydric Inclusion?**
Taxonomy (Subgroup): Typic Udipsamments **Field Observations Confirm Mapped Type?** Yes (No)
Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast		Texture, Concretions, Structure, etc
0 - 3	A	10YR2/1	N/A	N/A	N/A	Loamy sand
3 - 25	Bw	10YR6/6	N/A	N/A	N/A	Sand
25 - 28	BC	10YR6/4	N/A	N/A	N/A	Sand

Hydric Soil Indicators:

NO **Histosol**	NO **Concretions**
NO **Histic Epipedon**	NO **High Organic Content in Surface Layer in Sandy Soils**
NO **Sulfidic Odor**	NO **Organic Streaking in Sandy Soils**
NO **Aquic Moisture Regime**	NO **Listed on Local Hydric Soils List**
NO **Reducing Conditions**	NO **Listed on National Hydric Soils List**
NO **Gleyed or Low Chroma Colors**	NO **Other (Explain in Remarks)**

Remarks:
Hydric indicators were not observed, so the soils criterion is not satisfied.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes (No)	Is the Sampling Point within the Wetland? Yes (No)
Wetland Hydrology Present?	Yes (No)	
Hydric Soils Present?	Yes (No)	

Remarks:
This location fails all three criteria and does not qualify as wetland.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: J-Pit Redevelopment Project	**Project No:** 01210.w21	**Date:** 11-Jan-2002
Applicant/Owner: City of Gary (DOEA)		**County:** Lake
Investigators: Marc Wojtczak, Neil Molstad, Tom Hintz		**State:** Indiana
		Plot ID: 4

Do Normal Circumstances exist on the site?	(Yes) No	**Community ID:** Upland
Is the site significantly disturbed (Atypical Situation:)?	Yes (No)	**Transect ID:** Area 1
Is the area a potential Problem Area?	Yes (No)	**Field Location:**
(If needed, explain on the reverse side)		Data Point 4

VEGETATION **(USFWS Region No. 3, Sub-Region, Chicago Region (S&W))**

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicator
Lonicera tatarica	Shrub	FACU*	*Ribes cynosbati*	Shrub	UPL
Honeysuckle,Tartarian			Prickly Wild Gooseberry		
Prunus serotina	Tree	FACU	*Lactuca serriola*	Forb	FAC
Cherry,Black			Lettuce,Prickly		

Percent of Dominant Species that are OBL, FACW or FAC: (excluding FAC-) 1/4 = 25.00%

FAC Neutral: 0/3 = 0.00%

Remarks:
Less than 50% of the dominant species are hydrophytic, so the vegetation criterion is not satisfied.

HYDROLOGY

NO **Recorded Data(Describe in Remarks):**
- N/A **Stream, Lake or Tide Gauge**
- N/A **Aerial Photographs**
- N/A **Other**

YES **No Recorded Data**

Field Observations

Depth of Surface Water:	N/A *(in.)*
Depth to Free Water in Pit:	N/A *(in.)*
Depth to Saturated Soil:	> 33 *(in.)*

Wetland Hydrology Indicators

Primary Indicators
- NO **Inundated**
- NO **Saturated in Upper 12 Inches**
- NO **Water Marks**
- NO **Drift Lines**
- NO **Sediment Deposits**
- NO **Drainage Patterns in Wetlands**

Secondary Indicators
- NO **Oxidized Root Channels in Upper 12 Inches**
- NO **Water-Stained Leaves**
- NO **Local Soil Survey Data**
- NO **FAC-Neutral Test**
- NO **Other(Explain in Remarks)**

Remarks:
Saturated soil was not observed to a depth of 33 inches. This depth is too great to satisfy the hydrology criterion.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	J-Pit Redevelopment Project	**Project No:** 01210.w21	**Date:** 11-Jan-2002
Applicant/Owner:	City of Gary (DOEA)		**County:** Lake
Investigators:	Marc Wojtczak, Neil Molstad, Tom Hintz		**State:** Indiana
			Plot ID: 4

SOILS

Map Unit Name (Series and Phase): Morocco Loamy Fine Sand, Taxadjunct
Map Symbol: 501t **Drainage Class:** Somewhat poorly drained **Mapped Hydric Inclusion?**
Taxonomy (Subgroup): Aquic Udipsamments **Field Observations Confirm Mapped Type?** Yes (No)
Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast		Texture, Concretions, Structure, etc
0 - 4	A	10YR2/1	N/A	N/A	N/A	Loam
4 - 8	AB	10YR4/3	N/A	N/A	N/A	Silt loam
8 - 33	Bw	2.5Y7/3	10YR4/6	Few	Prominent	Sand

Hydric Soil Indicators:

NO **Histosol**	NO **Concretions**
NO **Histic Epipedon**	NO **High Organic Content in Surface Layer in Sandy Soils**
NO **Sulfidic Odor**	NO **Organic Streaking in Sandy Soils**
NO **Aquic Moisture Regime**	NO **Listed on Local Hydric Soils List**
NO **Reducing Conditions**	NO **Listed on National Hydric Soils List**
NO **Gleyed or Low Chroma Colors**	NO **Other (Explain in Remarks)**

Remarks:
Hydric indicators were not observed, so the soils criterion is not satisfied.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes (No)	Is the Sampling Point within the Wetland? Yes (No)
Wetland Hydrology Present?	Yes (No)	
Hydric Soils Present?	Yes (No)	

Remarks:
This location fails all three criteria and does not qualify as wetland.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	J-Pit Redevelopment Project	**Project No:** 01210.w21	**Date:** 14-Jan-2002
Applicant/Owner:	City of Gary (DOEA)		**County:** Lake
Investigators:	Marc Wojtczak, Neil Molstad, Tom Hintz		**State:** Indiana
			Plot ID: 5

Do Normal Circumstances exist on the site?	(Yes) No	**Community ID:** Upland
Is the site significantly disturbed (Atypical Situation:)?	Yes (No)	**Transect ID:** Area 2a
Is the area a potential Problem Area?	Yes (No)	**Field Location:**
(If needed, explain on the reverse side)		Data Point 5

VEGETATION **(USFWS Region No. 3, Sub-Region, Chicago Region (S&W))**

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicator
Poa pratensis	Grass	FAC-	*Ulmus pumila*	Tree	NI
Bluegrass,Kentucky			Siberian Elm		
Agropyron repens	Grass	FACU	*Ammophila breviligulata*	Grass	UPL*
Quackgrass			Marram Grass		
Panicum dichotomiflorum	Grass	FACW-			
Knee Grass					

Percent of Dominant Species that are OBL, FACW or FAC: (excluding FAC-) 1/4 = 25.00%

FAC Neutral: 1/3 = 33.33%

Remarks:
Less than 50% of the dominant species are hydrophytic, so the vegetation criterion is not satisfied.

HYDROLOGY

NO **Recorded Data(Describe in Remarks):**
- N/A **Stream, Lake or Tide Gauge**
- N/A **Aerial Photographs**
- N/A **Other**

YES **No Recorded Data**

Field Observations

Depth of Surface Water:	N/A *(in.)*
Depth to Free Water in Pit:	N/A *(in.)*
Depth to Saturated Soil:	> 27 *(in.)*

Wetland Hydrology Indicators

Primary Indicators
- NO **Inundated**
- NO **Saturated in Upper 12 Inches**
- NO **Water Marks**
- NO **Drift Lines**
- NO **Sediment Deposits**
- NO **Drainage Patterns in Wetlands**

Secondary Indicators
- NO **Oxidized Root Channels in Upper 12 Inches**
- NO **Water-Stained Leaves**
- NO **Local Soil Survey Data**
- NO **FAC-Neutral Test**
- NO **Other(Explain in Remarks)**

Remarks:
Saturated soil was not observed to a depth of 27 inches. This depth is too great to satisfy the hydrology criterion.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	J-Pit Redevelopment Project	**Project No:** 01210.w21	**Date:** 14-Jan-2002
Applicant/Owner:	City of Gary (DOEA)		**County:** Lake
Investigators:	Marc Wojtczak, Neil Molstad, Tom Hintz		**State:** Indiana
			Plot ID: 5

SOILS

Map Unit Name (Series and Phase): Made Land
Map Symbol: ML **Drainage Class:** unknown
Taxonomy (Subgroup): Orthents
Mapped Hydric Inclusion? none
Field Observations Confirm Mapped Type? Yes (No)

Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast		Texture, Concretions, Structure, etc
0 - 9	Mixed Fill	10YR6/3	10YR4/6	Few	Distinct	Sand, some decomposed organic material present
9 - 27	Mixed Fill	10YR7/3	N/A	N/A	N/A	Sand, occasioanl thin bands of darker material

Hydric Soil Indicators:

NO **Histosol**	NO **Concretions**
NO **Histic Epipedon**	NO **High Organic Content in Surface Layer in Sandy Soils**
NO **Sulfidic Odor**	NO **Organic Streaking in Sandy Soils**
NO **Aquic Moisture Regime**	NO **Listed on Local Hydric Soils List**
NO **Reducing Conditions**	NO **Listed on National Hydric Soils List**
NO **Gleyed or Low Chroma Colors**	NO **Other (Explain in Remarks)**

Remarks:
Hydric indicators were not observed, so the soils criterion is not satisfied.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes (No)	Is the Sampling Point within the Wetland? Yes (No)
Wetland Hydrology Present?	Yes (No)	
Hydric Soils Present?	Yes (No)	

Remarks:
This location fails all three criteria and does not qualify as wetland.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	J-Pit Redevelopment Project	**Project No:** 01210.w21	**Date:** 14-Jan-2002
Applicant/Owner:	City of Gary (DOEA)		**County:** Lake
Investigators:	Marc Wojtczak, Neil Molstad		**State:** Indiana
			Plot ID: 7

Do Normal Circumstances exist on the site?	(Yes) No	**Community ID:** Upland
Is the site significantly disturbed (Atypical Situation:)?	Yes (No)	**Transect ID:** Area 2a
Is the area a potential Problem Area?	(Yes) No	**Field Location:**
(If needed, explain on the reverse side)		Data Point 7

VEGETATION **(USFWS Region No. 3, Sub-Region, Chicago Region (S&W))**

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicator
Prunus serotina	Tree	FACU	*Osmorhiza claytonii*	Forb	FACU-
Cherry,Black			Sweetcicely,Hairy		
Acer negundo	Tree	FACW-	*Rubus allegheniensis*	Shrub	FACU+
Box-Elder			Blackberry,Allegheny		
Alliaria petiolata	Forb	FAC	*Lonicera maackii*	Shrub	UPL
Garlic Mustard			Amur Honeysuckle		

Percent of Dominant Species that are OBL, FACW or FAC: (excluding FAC-) 2/6 = 33.33%

FAC Neutral: 1/5 = 20.00%

Remarks:
Less than 50% of the dominant species are hydrophytic, so the vegetation criterion is not satisfied.

HYDROLOGY

NO **Recorded Data(Describe in Remarks):**
- N/A **Stream, Lake or Tide Gauge**
- N/A **Aerial Photographs**
- N/A **Other**

YES **No Recorded Data**

Field Observations

Depth of Surface Water:	N/A *(in.)*
Depth to Free Water in Pit:	N/A *(in.)*
Depth to Saturated Soil:	> 40 *(in.)*

Wetland Hydrology Indicators

Primary Indicators
- NO **Inundated**
- NO **Saturated in Upper 12 Inches**
- NO **Water Marks**
- NO **Drift Lines**
- NO **Sediment Deposits**
- NO **Drainage Patterns in Wetlands**

Secondary Indicators
- NO **Oxidized Root Channels in Upper 12 Inches**
- NO **Water-Stained Leaves**
- NO **Local Soil Survey Data**
- NO **FAC-Neutral Test**
- NO **Other(Explain in Remarks)**

Remarks:
Saturated soil was not observed to a depth of 40 inches. This depth is too great to satisify the hydrology criterion.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	J-Pit Redevelopment Project	**Project No:** 01210.w21	**Date:** 14-Jan-2002
Applicant/Owner:	City of Gary (DOEA)		**County:** Lake
Investigators:	Marc Wojtczak, Neil Molstad		**State:** Indiana
			Plot ID: 7

SOILS

Map Unit Name (Series and Phase): Granby Loamy Fine Sand
Map Symbol: 513 **Drainage Class:** poorly drained **Mapped Hydric Inclusion?** Marsh
Taxonomy (Subgroup): Typic Haplaquolls **Field Observations Confirm Mapped Type?** Yes (No)
Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc
0 - 13	A	10YR2/1	7.5YR3/4	Few Prominent	Sandy loam
13 - 32	Bg1	10YR6/2	10YR4/6	Common Distinct	Sand, some mixing between the first and second horizon observed
32 - 40	Bg2	10YR6/3	10YR4/6 10YR5/6	Common Distinct Common Distinct	Sand

Hydric Soil Indicators:

NO **Histosol**	NO **Concretions**
NO **Histic Epipedon**	NO **High Organic Content in Surface Layer in Sandy Soils**
NO **Sulfidic Odor**	NO **Organic Streaking in Sandy Soils**
YES **Aquic Moisture Regime**	YES **Listed on Local Hydric Soils List**
NO **Reducing Conditions**	YES **Listed on National Hydric Soils List**
YES **Gleyed or Low Chroma Colors**	NO **Other (Explain in Remarks)**

Remarks:
Although no hydric soil field indicators were observed, this profile satisfies the soils criterion. A complete explanation is provided at the bottom of this dataform.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes (No)	Is the Sampling Point within the Wetland? Yes (No)
Wetland Hydrology Present?	Yes (No)	
Hydric Soils Present?	(Yes) No	

Remarks:
This location fails the vegetation and hydrology criteria and does not qualify as wetland.

Explanation for response to: Normal Circumstances? Atypical Situation ? Potential Problem Area ?
No hydric soil field indicators were observed in the soil profile at this location, yet the soil is classified taxonomically as being poorly drained. Additional evidence such as the presence of gray sandy subsoil and of redoximorphic features throughout the profile indicate that the upper portion of the soil profile is saturated for at least two weeks during the growing season, satisfying the soils criterion.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	J-Pit Redevelopment Project	**Project No:** 01210.w21	**Date:** 14-Jan-2002
Applicant/Owner:	City of Gary (DOEA)		**County:** Lake
Investigators:	Marc Wojtczak, Neil Molstad		**State:** Indiana
			Plot ID: 6

Do Normal Circumstances exist on the site?	(Yes) No	**Community ID:** Wetland
Is the site significantly disturbed (Atypical Situation:)?	Yes (No)	**Transect ID:** Area 2b
Is the area a potential Problem Area?	(Yes) No	**Field Location:**
(If needed, explain on the reverse side)		Data Point 6

VEGETATION **(USFWS Region No. 3, Sub-Region, Chicago Region (S&W))**

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicator
Populus deltoides	Tree	FAC+	*Helianthus grosseserratus*	Forb	FACW-
Cotton-Wood,Eastern			Sunflower,Saw-Tooth		
Osmorhiza claytonii	Forb	FACU-	*Sanicula gregaria*	Forb	FAC+
Sweetcicely,Hairy			Black-Snakeroot,Clustered		
Populus tremuloides	Tree	FAC	*Solidago altissima*	Forb	FACU
Quaking Aspen			Golden-Rod,Tall		
Rubus allegheniensis	Shrub	FACU+	*Vitis riparia*	Vine	FACW-
Blackberry,Allegheny			Grape,River-Bank		

Percent of Dominant Species that are OBL, FACW or FAC: 5/8 = 62.50%
(excluding FAC-)

FAC Neutral: 2/5 = 40.00%

Remarks:
Greater than 50% of the dominant species are hydrophytic, so the vegetation criterion is satisfied.

HYDROLOGY

NO **Recorded Data(Describe in Remarks):**
- N/A **Stream, Lake or Tide Gauge**
- N/A **Aerial Photographs**
- N/A **Other**

YES **No Recorded Data**

Field Observations

Depth of Surface Water:	N/A *(in.)*
Depth to Free Water in Pit:	N/A *(in.)*
Depth to Saturated Soil:	> 39 *(in.)*

Wetland Hydrology Indicators

Primary Indicators
- NO **Inundated**
- NO **Saturated in Upper 12 Inches**
- NO **Water Marks**
- NO **Drift Lines**
- NO **Sediment Deposits**
- YES **Drainage Patterns in Wetlands**

Secondary Indicators
- NO **Oxidized Root Channels in Upper 12 Inches**
- NO **Water-Stained Leaves**
- NO **Local Soil Survey Data**
- NO **FAC-Neutral Test**
- YES **Other(Explain in Remarks)**

Remarks:
The presence of primary (drainage patterns) and secondary (buttressed trees) wetland hydrology indicators were observed, so the hydrology criterion is satisfied.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: J-Pit Redevelopment Project	**Project No:** 01210.w21	**Date:** 14-Jan-2002
Applicant/Owner: City of Gary (DOEA)		**County:** Lake
Investigators: Marc Wojtczak, Neil Molstad		**State:** Indiana
		Plot ID: 6

SOILS

Map Unit Name (Series and Phase): Granby Loamy Fine Sand
Map Symbol: 513 **Drainage Class:** poorly drained **Mapped Hydric Inclusion?** Marsh
Taxonomy (Subgroup): Typic Haplaquolls **Field Observations Confirm Mapped Type?** Yes (No)
Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast		Texture, Concretions, Structure, etc
0 - 11	A	10YR2/1	N/A	N/A	N/A	Loamy sand
11 - 21	Bg	10YR6/2	10YR4/6	Common	Prominent	Sand
21 - 39	C	10YR6/4	10YR4/6	Common	Distinct	Sand, stratified with 10YR2/1 & 10YR7/1

Hydric Soil Indicators:

NO **Histosol**	NO **Concretions**
NO **Histic Epipedon**	NO **High Organic Content in Surface Layer in Sandy Soils**
NO **Sulfidic Odor**	NO **Organic Streaking in Sandy Soils**
YES **Aquic Moisture Regime**	YES **Listed on Local Hydric Soils List**
NO **Reducing Conditions**	YES **Listed on National Hydric Soils List**
YES **Gleyed or Low Chroma Colors**	NO **Other (Explain in Remarks)**

Remarks:
Although no field indicators of hydric soil were observed, this location satisfies the soils criterion. Please see the bottom of this dataform for a complete explanation.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	(Yes)	No	Is the Sampling Point within the Wetland? (Yes) No
Wetland Hydrology Present?	(Yes)	No	
Hydric Soils Present?	(Yes)	No	

Remarks:
This location satisfies all three criteria and qualifies as wetland.

Explanation for response to: Normal Circumstances? Atypical Situation ? Potential Problem Area ?
The soil profile at this location is classified taxonomicly as being poorly drained, but does not exhibit any hydric soil field indicators. However, additional evidence such as the depressional landscape position of the location and the presence of gray sandy subsoil material indicates that the soil profile is subject to extended periods of saturation or inundation, satisfying the soils criterion.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	J-Pit Redevelopment Project	**Project No:** 01210.w21	**Date:** 14-Jan-2002
Applicant/Owner:	City of Gary (DOEA)		**County:** Lake
Investigators:	Marc Wojtczak, Neil Molstad		**State:** Indiana
			Plot ID: 18

Do Normal Circumstances exist on the site?	(Yes) No	**Community ID:** Upland
Is the site significantly disturbed (Atypical Situation:)?	Yes (No)	**Transect ID:** Area 3a
Is the area a potential Problem Area?	Yes (No)	**Field Location:**
(If needed, explain on the reverse side)		Data Point 18

VEGETATION **(USFWS Region No. 3, Sub-Region, Chicago Region (S&W))**

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicator
Lythrum salicaria	Forb	OBL	*Phragmites australis*	Grass	FACW+
Loosestrife,Purple			Reed,Common		

Percent of Dominant Species that are OBL, FACW or FAC: (excluding FAC-) 2/2 = 100.00%

FAC Neutral: 2/2 = 100.00%

Remarks:
Both of the dominant species are hydrophytic, so the vegetation criterion is satisfied.

HYDROLOGY

NO **Recorded Data(Describe in Remarks):**
- N/A **Stream, Lake or Tide Gauge**
- N/A **Aerial Photographs**
- N/A **Other**

YES **No Recorded Data**

Field Observations

Depth of Surface Water:	N/A *(in.)*
Depth to Free Water in Pit:	N/A *(in.)*
Depth to Saturated Soil:	> 37 *(in.)*

Wetland Hydrology Indicators

Primary Indicators
- NO **Inundated**
- NO **Saturated in Upper 12 Inches**
- NO **Water Marks**
- NO **Drift Lines**
- NO **Sediment Deposits**
- NO **Drainage Patterns in Wetlands**

Secondary Indicators
- NO **Oxidized Root Channels in Upper 12 Inches**
- NO **Water-Stained Leaves**
- NO **Local Soil Survey Data**
- YES **FAC-Neutral Test**
- NO **Other(Explain in Remarks)**

Remarks:
Saturated soil was not observed to a depth of 37 inches. This depth is too great to satisfy the hydrology criterion.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	J-Pit Redevelopment Project	**Project No:** 01210.w21	**Date:** 14-Jan-2002
Applicant/Owner:	City of Gary (DOEA)		**County:** Lake
Investigators:	Marc Wojtczak, Neil Molstad		**State:** Indiana
			Plot ID: 18

SOILS

Map Unit Name (Series and Phase): Made Land
Map Symbol: ML **Drainage Class:** unknown
Taxonomy (Subgroup): Orthents
Mapped Hydric Inclusion? none
Field Observations Confirm Mapped Type? Yes (No)

Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast		Texture, Concretions, Structure, etc
0 - 9	Mixed Fill	10YR2/1	N/A	N/A	N/A	Sandy loam, mixed with 10YR2/2
9 - 20	ixed Fill	N2.5/	N/A	N/A	N/A	Sandy loam, mixed with some 10YR5/1 sand
20 - 31	C1	10YR5/2	N/A	N/A	N/A	Sand, mixed with 10YR6/2
31 - 37	C2	10YR6/2	N/A	N/A	N/A	Sand

Hydric Soil Indicators:

NO **Histosol**
NO **Histic Epipedon**
NO **Sulfidic Odor**
NO **Aquic Moisture Regime**
NO **Reducing Conditions**
NO **Gleyed or Low Chroma Colors**
NO **Concretions**
NO **High Organic Content in Surface Layer in Sandy Soils**
NO **Organic Streaking in Sandy Soils**
NO **Listed on Local Hydric Soils List**
NO **Listed on National Hydric Soils List**
NO **Other (Explain in Remarks)**

Remarks:
Hydric indicators were not observed, so the soils criterion is not satisfied.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	(Yes) No	Is the Sampling Point within the Wetland? Yes (No)
Wetland Hydrology Present?	Yes (No)	
Hydric Soils Present?	Yes (No)	

Remarks:
This location fails the hydrology and soils criteria and does not qualify as wetland.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: J-Pit Redevelopment Project	**Project No:** 01210.w21	**Date:** 14-Jan-2002
Applicant/Owner: City of Gary (DOEA)		**County:** Lake
Investigators: Marc Wojtczak, Neil Molstad		**State:** Indiana
		Plot ID: 19

Do Normal Circumstances exist on the site?	(Yes) No	**Community ID:** Upland
Is the site significantly disturbed (Atypical Situation:)?	Yes (No)	**Transect ID:** Area 3a
Is the area a potential Problem Area?	Yes (No)	**Field Location:**
(If needed, explain on the reverse side)		Data Point 19

VEGETATION **(USFWS Region No. 3, Sub-Region, Chicago Region (S&W))**

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicator
Ageratina altissima	Forb	FACU	*Desmodium glutinosum*	Forb	UPL
Snakeroot,White			Pointed Tick Trefoil		
Andropogon gerardii	Grass	FAC-	*Poa pratensis*	Grass	FAC-
Big Bluestem Grass			Bluegrass,Kentucky		

Percent of Dominant Species that are OBL, FACW or FAC: (excluding FAC-) 0/4 = 0.00%

FAC Neutral: 0/2 = 0.00%

Remarks:
None of the dominant species are hydrophytic, so the vegetation criterion is not satisfied.

HYDROLOGY

NO **Recorded Data(Describe in Remarks):**
- N/A **Stream, Lake or Tide Gauge**
- N/A **Aerial Photographs**
- N/A **Other**

YES **No Recorded Data**

Field Observations

Depth of Surface Water:	N/A *(in.)*
Depth to Free Water in Pit:	N/A *(in.)*
Depth to Saturated Soil:	> 34 *(in.)*

Wetland Hydrology Indicators

Primary Indicators
- NO **Inundated**
- NO **Saturated in Upper 12 Inches**
- NO **Water Marks**
- NO **Drift Lines**
- NO **Sediment Deposits**
- NO **Drainage Patterns in Wetlands**

Secondary Indicators
- NO **Oxidized Root Channels in Upper 12 Inches**
- NO **Water-Stained Leaves**
- NO **Local Soil Survey Data**
- NO **FAC-Neutral Test**
- NO **Other(Explain in Remarks)**

Remarks:
Saturated soil was not observed to a depth of 34 inches. This depth is too great to satisfy the hydrology criterion.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: J-Pit Redevelopment Project	**Project No:** 01210.w21	**Date:** 14-Jan-2002
Applicant/Owner: City of Gary (DOEA)		**County:** Lake
Investigators: Marc Wojtczak, Neil Molstad		**State:** Indiana
		Plot ID: 19

SOILS

Map Unit Name (Series and Phase): Made Land
Map Symbol: ML **Drainage Class:** unknown
Taxonomy (Subgroup): Orthents
Mapped Hydric Inclusion? none
Field Observations Confirm Mapped Type? Yes (No)
Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Molst)	Mottle Abundance/Contrast		Texture, Concretions, Structure, etc
0 - 5	Fill	10YR4/2	N/A	N/A	N/A	Sand
5 - 20	Fill	10YR6/6	N/A	N/A	N/A	Sand
20 - 27	Ab	10YR2/1	N/A	N/A	N/A	Sandy loam
27 - 34	Cb	2.5Y5/2	N/A	N/A	N/A	Sand

Hydric Soil Indicators:

NO **Histosol**	NO **Concretions**
NO **Histic Epipedon**	NO **High Organic Content in Surface Layer in Sandy Soils**
NO **Sulfidic Odor**	NO **Organic Streaking in Sandy Soils**
NO **Aquic Moisture Regime**	NO **Listed on Local Hydric Soils List**
NO **Reducing Conditions**	NO **Listed on National Hydric Soils List**
NO **Gleyed or Low Chroma Colors**	NO **Other (Explain in Remarks)**

Remarks:
Hydric indicators were not observed, so the soils criterion is not satisfied.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes (No)	Is the Sampling Point within the Wetland? Yes (No)
Wetland Hydrology Present?	Yes (No)	
Hydric Soils Present?	Yes (No)	

Remarks:
This location fails all three criteria and does not qualify as wetland.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	J-Pit Redevelopment Project	**Project No:** 01210.w21	**Date:** 14-Jan-2002
Applicant/Owner:	City of Gary (DOEA)		**County:** Lake
Investigators:	Marc Wojtczak, Neil Molstad		**State:** Indiana
			Plot ID: 21

Do Normal Circumstances exist on the site?	(Yes) No	**Community ID:** Upland
Is the site significantly disturbed (Atypical Situation:)?	Yes (No)	**Transect ID:** Area 3a
Is the area a potential Problem Area?	Yes (No)	**Field Location:**
(If needed, explain on the reverse side)		Data Point 21

VEGETATION **(USFWS Region No. 3, Sub-Region, Chicago Region (S&W))**

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicator
Oenothera biennis	Forb	FACU	*Populus deltoides*	Tree	FAC+
Evening-Primrose,Common			Cotton-Wood,Eastern		
Daucus carota	Forb	UPL	*Poa pratensis*	Grass	FAC-
Wild Carrot, Queen Anne's Lace			Bluegrass,Kentucky		
Achillea millefolium	Forb	FACU	*Aster dumosus*	Forb	FAC+
Yarrow			Bushy Aster		

Percent of Dominant Species that are OBL, FACW or FAC: (excluding FAC-) 2/6 = 33.33%

FAC Neutral: 0/3 = 0.00%

Remarks:
Less than 50% of the dominant species are hydrophytic, so the vegetation criterion is not satisfied.

HYDROLOGY

NO **Recorded Data(Describe in Remarks):**
- N/A **Stream, Lake or Tide Gauge**
- N/A **Aerial Photographs**
- N/A **Other**

YES **No Recorded Data**

Field Observations

Depth of Surface Water:	N/A *(in.)*
Depth to Free Water in Pit:	N/A *(in.)*
Depth to Saturated Soil:	> 26 *(in.)*

Wetland Hydrology Indicators

Primary Indicators
- NO **Inundated**
- NO **Saturated in Upper 12 Inches**
- NO **Water Marks**
- NO **Drift Lines**
- NO **Sediment Deposits**
- NO **Drainage Patterns in Wetlands**

Secondary Indicators
- NO **Oxidized Root Channels in Upper 12 Inches**
- NO **Water-Stained Leaves**
- NO **Local Soil Survey Data**
- NO **FAC-Neutral Test**
- NO **Other(Explain in Remarks)**

Remarks:
Saturated soil was not observed to a depth of 26 inches. This depth is too great to satisfy the hydrology criterion.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	J-Pit Redevelopment Project	**Project No:** 01210.w21	**Date:** 14-Jan-2002
Applicant/Owner:	City of Gary (DOEA)		**County:** Lake
Investigators:	Marc Wojtczak, Neil Molstad		**State:** Indiana
			Plot ID: 21

SOILS

Map Unit Name (Series and Phase): Made Land
Map Symbol: ML **Drainage Class:** unknown **Mapped Hydric Inclusion?** none
Taxonomy (Subgroup): Orthents **Field Observations Confirm Mapped Type?** Yes (No)
Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast		Texture, Concretions, Structure, etc
0 - 6	A	2.5Y2.5/1	N/A	N/A	N/A	Loamy sand
6 - 16	C1	10YR6/4	N/A	N/A	N/A	Sand
16 - 26	C2	10YR7/3	N/A	N/A	N/A	Sand

Hydric Soil Indicators:

NO **Histosol**	NO **Concretions**
NO **Histic Epipedon**	NO **High Organic Content in Surface Layer in Sandy Soils**
NO **Sulfidic Odor**	NO **Organic Streaking in Sandy Soils**
NO **Aquic Moisture Regime**	NO **Listed on Local Hydric Soils List**
NO **Reducing Conditions**	NO **Listed on National Hydric Soils List**
NO **Gleyed or Low Chroma Colors**	NO **Other (Explain in Remarks)**

Remarks:
Hydric indicators were not observed, so the soils criterion is not satisfied.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes (No)	Is the Sampling Point within the Wetland?	Yes (No)
Wetland Hydrology Present?	Yes (No)		
Hydric Soils Present?	Yes (No)		

Remarks:
This location fails all three criteria and does not qualify as wetland.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	J-Pit Redevelopment Project	**Project No:** 01210.w21	**Date:** 4-Sep-2003
Applicant/Owner:	City of Gary (DOEA)		**County:** Lake
Investigators:	Marc Wojtczak, Louis Moran, Desiree Tazelaar		**State:** Indiana
			Plot ID: 22

Do Normal Circumstances exist on the site?	(Yes) No	**Community ID:** Upland, remnant dune
Is the site significantly disturbed (Atypical Situation:)?	Yes (No)	**Transect ID:** Area 3b
Is the area a potential Problem Area?	Yes (No)	**Field Location:**
(If needed, explain on the reverse side)		Data Point 22

VEGETATION **(USFWS Region No. 3, Sub-Region, Chicago Region (S&W))**

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicator
Helianthus divaricatus	Forb	UPL	*Rubus occidentalis*	Shrub	UPL
Woodland Sunflower			Black Raspberry		
Desmodium glutinosum	Forb	UPL	*Solidago altissima*	Forb	FACU
Pointed Tick Trefoil			Golden-Rod,Tall		
Quercus velutina	Tree	UPL	*Carex pensylvanica*	Sedge	UPL
Black Oak			Common Oak Sedge		

Percent of Dominant Species that are OBL, FACW or FAC: (excluding FAC-) 0/6 = 0.00%

FAC Neutral: 0/6 = 0.00%

Remarks:
None of the dominant species are hydrophytic, so the vegetation criterion is not satisfied.

HYDROLOGY

NO **Recorded Data(Describe in Remarks):**
- N/A **Stream, Lake or Tide Gauge**
- N/A **Aerial Photographs**
- N/A **Other**

YES **No Recorded Data**

Field Observations

Depth of Surface Water:	N/A *(in.)*
Depth to Free Water in Pit:	N/A *(in.)*
Depth to Saturated Soil:	> 25 *(in.)*

Wetland Hydrology Indicators

Primary Indicators
- NO **Inundated**
- NO **Saturated in Upper 12 Inches**
- NO **Water Marks**
- NO **Drift Lines**
- NO **Sediment Deposits**
- NO **Drainage Patterns in Wetlands**

Secondary Indicators
- NO **Oxidized Root Channels in Upper 12 Inches**
- NO **Water-Stained Leaves**
- NO **Local Soil Survey Data**
- NO **FAC-Neutral Test**
- NO **Other(Explain in Remarks)**

Remarks:
Saturated soil was not observed to a depth of 25 inches. This depth is too great to satisfy the hydrology criterion.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	J-Pit Redevelopment Project	**Project No:** 01210.w21	**Date:** 4-Sep-2003
Applicant/Owner:	City of Gary (DOEA)		**County:** Lake
Investigators:	Marc Wojtczak, Louis Moran, Desiree Tazelaar		**State:** Indiana
			Plot ID: 22

SOILS

Map Unit Name (Series and Phase): Morocco Loamy Fine Sand, Taxadjunct
Map Symbol: 501t **Drainage Class:** Somewhat poorly drained **Mapped Hydric Inclusion?**
Taxonomy (Subgroup): Aquic Udipsamments **Field Observations Confirm Mapped Type?** Yes (No)
Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast		Texture, Concretions, Structure, etc
0 - 5	Ap	2.5Y2.5/1	N/A	N/A	N/A	Sandy loam, many fine roots
5 - 8	A	2.5Y2.5/1	N/A	N/A	N/A	Sandy loam, roots
8 - 11	AB	10YR3/3	N/A	N/A	N/A	Loamy sand, mixed w/ 10YR3/1
11 - 17	Bw1	10YR4/2	N/A	N/A	N/A	Loamy sand, mixed w/ 10YR4/3; few fine roots
17 - 25	Bw2	10YR4/3	N/A	N/A	N/A	Loamy sand, 10YR3/4 pore linings

Hydric Soil Indicators:

NO **Histosol**	NO **Concretions**
NO **Histic Epipedon**	NO **High Organic Content in Surface Layer in Sandy Soils**
NO **Sulfidic Odor**	NO **Organic Streaking in Sandy Soils**
NO **Aquic Moisture Regime**	NO **Listed on Local Hydric Soils List**
NO **Reducing Conditions**	NO **Listed on National Hydric Soils List**
NO **Gleyed or Low Chroma Colors**	NO **Other (Explain in Remarks)**

Remarks:
Hydric soil field indicators were not observed, so the soils criterion is not satisfied.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes (No)	Is the Sampling Point within the Wetland?	Yes (No)
Wetland Hydrology Present?	Yes (No)		
Hydric Soils Present?	Yes (No)		

Remarks:
This location fails all three criteria and does not qualify as wetland.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	J-Pit Redevelopment Project	**Project No:** 01210.w21	**Date:** 14-Jan-2002
Applicant/Owner:	City of Gary (DOEA)		**County:** Lake
Investigators:	Marc Wojtczak, Neil Molstad		**State:** Indiana
			Plot ID: 20

Do Normal Circumstances exist on the site?	(Yes) No	**Community ID:** Wetland
Is the site significantly disturbed (Atypical Situation:)?	Yes (No)	**Transect ID:** Area 3c
Is the area a potential Problem Area?	Yes (No)	**Field Location:**
(If needed, explain on the reverse side)		Data Point 20

VEGETATION **(USFWS Region No. 3, Sub-Region, Chicago Region (S&W))**

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicator
Lythrum salicaria	Forb	OBL	*Salix nigra*	Tree	OBL
Loosestrife,Purple			Willow,Black		
Typha angustifolia	Forb	OBL	*Vitis riparia*	Vine	FACW-
Narrow-leaved Cattail			Grape,River-Bank		

Percent of Dominant Species that are OBL, FACW or FAC: **(excluding FAC-)** 4/4 = 100.00%

FAC Neutral: 4/4 = 100.00%

Remarks:
All of the dominant species are hydrophytic, so the vegetation criterion is satisfied.

HYDROLOGY

NO **Recorded Data(Describe in Remarks):**
- N/A **Stream, Lake or Tide Gauge**
- N/A **Aerial Photographs**
- N/A **Other**

YES **No Recorded Data**

Field Observations

Depth of Surface Water:	N/A *(in.)*
Depth to Free Water in Pit:	N/A *(in.)*
Depth to Saturated Soil:	= 12 *(in.)*

Wetland Hydrology Indicators

Primary Indicators
- NO **Inundated**
- YES **Saturated in Upper 12 Inches**
- NO **Water Marks**
- NO **Drift Lines**
- NO **Sediment Deposits**
- NO **Drainage Patterns in Wetlands**

Secondary Indicators
- NO **Oxidized Root Channels in Upper 12 Inches**
- NO **Water-Stained Leaves**
- NO **Local Soil Survey Data**
- YES **FAC-Neutral Test**
- NO **Other(Explain in Remarks)**

Remarks:
The presence of primary (saturation within the upper 12 inches of soil) and secondary (positive FAC-neutral Test) wetland hydrology indicators satisfies the hydrology criterion.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	J-Pit Redevelopment Project	**Project No:** 01210.w21	**Date:** 14-Jan-2002
Applicant/Owner:	City of Gary (DOEA)		**County:** Lake
Investigators:	Marc Wojtczak, Neil Molstad		**State:** Indiana
			Plot ID: 20

SOILS

Map Unit Name (Series and Phase): Adrian Muck, Taxadjunct
Map Symbol: 777t **Drainage Class:** Very poorly drained **Mapped Hydric Inclusion?**
Taxonomy (Subgroup): Terric Haplosaprists **Field Observations Confirm Mapped Type?** Yes (No)
Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast		Texture, Concretions, Structure, etc
0 - 23	A	N2.5/	N/A	N/A	N/A	Loam, mucky
23 - 28	Bg	2.5Y5/2	10YR4/6	Common	Prominent	Sand

Hydric Soil Indicators:

YES **Histosol**	NO **Concretions**
NO **Histic Epipedon**	NO **High Organic Content in Surface Layer in Sandy Soils**
NO **Sulfidic Odor**	NO **Organic Streaking in Sandy Soils**
NO **Aquic Moisture Regime**	YES **Listed on Local Hydric Soils List**
NO **Reducing Conditions**	YES **Listed on National Hydric Soils List**
YES **Gleyed or Low Chroma Colors**	NO **Other (Explain in Remarks)**

Remarks:
This soil profile exhibits hydric soil field indicator F1, Loamy Mucky Mineral, and satisfies the soils criterion.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	(Yes) No	Is the Sampling Point within the Wetland?	(Yes) No
Wetland Hydrology Present?	(Yes) No		
Hydric Soils Present?	(Yes) No		

Remarks:
This location satisfies all three criteria and qualifies as wetland.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	J-Pit Redevelopment Project	**Project No:** 01210.w21	**Date:** 4-Sep-2003
Applicant/Owner:	City of Gary (DOEA)		**County:** Lake
Investigators:	Marc Wojtczak, Louis Moran, Desiree Tazelaar		**State:** Indiana
			Plot ID: 23

Do Normal Circumstances exist on the site?	(Yes) No	**Community ID:** Wetland
Is the site significantly disturbed (Atypical Situation:)?	Yes (No)	**Transect ID:** Area 3c
Is the area a potential Problem Area?	Yes (No)	**Field Location:**
(If needed, explain on the reverse side)		Data Point 23

VEGETATION **(USFWS Region No. 3, Sub-Region, Chicago Region (S&W))**

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicator
Sambucus canadensis	Shrub	FACW-	*Eupatorium rugosum*	Forb	UPL
Elder,American			White Snakeroot		
Eupatorium maculatum	Forb	OBL	*Osmunda regalis spectabilis*	Forb	OBL
Spotted Joe Pye Weed			Fern,Royal		
Calamagrostis canadensis	Grass	OBL	*Amphicarpaea bracteata*	Vine	FACW*
Blue Joint Grass			Upland Hog Peanut		

Percent of Dominant Species that are OBL, FACW or FAC: (excluding FAC-) 5/6 = 83.33%

FAC Neutral: 5/6 = 83.33%

Remarks:
Greater than 50% of the dominant species are hydrophytic, so the vegetation criterion is satisfied.

HYDROLOGY

NO **Recorded Data(Describe in Remarks):**
- N/A **Stream, Lake or Tide Gauge**
- N/A **Aerial Photographs**
- N/A **Other**

YES **No Recorded Data**

Field Observations

Depth of Surface Water:	N/A *(in.)*
Depth to Free Water in Pit:	N/A *(in.)*
Depth to Saturated Soil:	= 10 *(in.)*

Wetland Hydrology Indicators

Primary Indicators
- NO **Inundated**
- YES **Saturated in Upper 12 Inches**
- NO **Water Marks**
- NO **Drift Lines**
- NO **Sediment Deposits**
- NO **Drainage Patterns in Wetlands**

Secondary Indicators
- YES **Oxidized Root Channels in Upper 12 Inches**
- NO **Water-Stained Leaves**
- NO **Local Soil Survey Data**
- YES **FAC-Neutral Test**
- NO **Other(Explain in Remarks)**

Remarks:
The presence of primary (soil saturation within upper 12 inches) and secondary (oxidized root channels, positive FAC-neutral test) wetland hydrology indicators satisfies the hydrology criterion.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	J-Pit Redevelopment Project	**Project No:** 01210.w21	**Date:** 4-Sep-2003
Applicant/Owner:	City of Gary (DOEA)		**County:** Lake
Investigators:	Marc Wojtczak, Louis Moran, Desiree Tazelaar		**State:** Indiana
			Plot ID: 23

SOILS

Map Unit Name (Series and Phase): Gilford fine sandy loam
Map Symbol: 201 **Drainage Class:** Very Poor **Mapped Hydric Inclusion?**
Taxonomy (Subgroup): Typic Endoaquolls **Field Observations Confirm Mapped Type?** Yes (No)
Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast		Texture, Concretions, Structure, etc
0 - 5	A1	N2.5/	N/A	N/A	N/A	Sandy loam
5 - 10	A2	N2.5/	10YR3/3 10YR4/6	Few Few	Prominent Prominent	Sandy loam, oxidized root channels
10 - 24	ABg	2.5Y2.5/1	N/A	N/A	N/A	Sandy loam, 25% matrix color is 2.5Y5/2; few fine roots
24 - 30	Cg	2.5Y6/2	2.5Y3/1	Few	Distinct	Loamy sand

Hydric Soil Indicators:

NO **Histosol**	NO **Concretions**
NO **Histic Epipedon**	NO **High Organic Content in Surface Layer in Sandy Soils**
YES **Sulfidic Odor**	NO **Organic Streaking in Sandy Soils**
YES **Aquic Moisture Regime**	YES **Listed on Local Hydric Soils List**
NO **Reducing Conditions**	YES **Listed on National Hydric Soils List**
YES **Gleyed or Low Chroma Colors**	NO **Other (Explain in Remarks)**

Remarks:
This profile exhibits hydric soil field indicator F1, loamy mucky mineral and F6, Redox Dark Surface, and satisfies the soils criterion.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	(Yes)	No	Is the Sampling Point within the Wetland? (Yes) No
Wetland Hydrology Present?	(Yes)	No	
Hydric Soils Present?	(Yes)	No	

Remarks:
This location satisfies all three criteria and qualifies as wetland.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	J-Pit Redevelopment Project	**Project No:** 01210.w21	**Date:** 14-Jan-2002
Applicant/Owner:	City of Gary (DOEA)		**County:** Lake
Investigators:	Marc Wojtczak, Neil Molstad		**State:** Indiana
			Plot ID: 8

Do Normal Circumstances exist on the site?	(Yes) No	**Community ID:** Upland
Is the site significantly disturbed (Atypical Situation:)?	Yes (No)	**Transect ID:** Area 4a
Is the area a potential Problem Area?	Yes (No)	**Field Location:**
(If needed, explain on the reverse side)		Data Point 8

VEGETATION **(USFWS Region No. 3, Sub-Region, Chicago Region (S&W))**

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicator
Quercus velutina	Tree	UPL	*Vitis riparia*	Vine	FACW-
Black Oak			Grape,River-Bank		
Cornus racemosa	Shrub	FACW-	*Prunus serotina*	Tree	FACU
Gray Dogwood			Cherry,Black		

Percent of Dominant Species that are OBL, FACW or FAC: (excluding FAC-) 2/4 = 50.00%

FAC Neutral: 2/4 = 50.00%

Remarks:
Only 50% of the dominant species are hydrophytic, so the vegetation criterion is not satisfied.

HYDROLOGY

NO **Recorded Data(Describe in Remarks):**
- N/A **Stream, Lake or Tide Gauge**
- N/A **Aerial Photographs**
- N/A **Other**

YES **No Recorded Data**

Field Observations

Depth of Surface Water:	N/A *(in.)*
Depth to Free Water in Pit:	N/A *(in.)*
Depth to Saturated Soil:	= 40 *(in.)*

Wetland Hydrology Indicators

Primary Indicators
- NO **Inundated**
- NO **Saturated in Upper 12 Inches**
- NO **Water Marks**
- NO **Drift Lines**
- NO **Sediment Deposits**
- NO **Drainage Patterns in Wetlands**

Secondary Indicators
- NO **Oxidized Root Channels in Upper 12 Inches**
- NO **Water-Stained Leaves**
- NO **Local Soil Survey Data**
- NO **FAC-Neutral Test**
- NO **Other(Explain in Remarks)**

Remarks:
Saturated soil was observed at a depth of 40 inches. This depth is too great to satisfy the hydrology criterion.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: J-Pit Redevelopment Project	**Project No:** 01210.w21	**Date:** 14-Jan-2002
Applicant/Owner: City of Gary (DOEA)		**County:** Lake
Investigators: Marc Wojtczak, Neil Molstad		**State:** Indiana
		Plot ID: 8

SOILS

Map Unit Name (Series and Phase): Morocco loamy fine sand
Map Symbol: 501 **Drainage Class:** Somewhat poorly drained **Mapped Hydric Inclusion?**
Taxonomy (Subgroup): Aquic Udipsamments **Field Observations Confirm Mapped Type?** Yes (No)
Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast		Texture, Concretions, Structure, etc
0 - 9	A	10YR3/2	N/A	N/A	N/A	Sandy loam
9 - 11	Bw1	10YR4/3	N/A	N/A	N/A	Loamy sand
11 - 40	Bw2	10YR5/6	10YR4/6	Common	Faint	Sand

Hydric Soil Indicators:

NO **Histosol**	NO **Concretions**
NO **Histic Epipedon**	NO **High Organic Content in Surface Layer in Sandy Soils**
NO **Sulfidic Odor**	NO **Organic Streaking in Sandy Soils**
NO **Aquic Moisture Regime**	NO **Listed on Local Hydric Soils List**
NO **Reducing Conditions**	NO **Listed on National Hydric Soils List**
NO **Gleyed or Low Chroma Colors**	NO **Other (Explain in Remarks)**

Remarks:
Hydric indicators were not observed, so the soils criterion is not satisfied.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes (No)	Is the Sampling Point within the Wetland?	Yes (No)
Wetland Hydrology Present?	Yes (No)		
Hydric Soils Present?	Yes (No)		

Remarks:
This location fails all three criteria and does not qualify as wetland.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	J-Pit Redevelopment Project	**Project No:** 01210.w21	**Date:** 14-Jan-2002
Applicant/Owner:	City of Gary (DOEA)		**County:** Lake
Investigators:	Marc Wojtczak, Neil Molstad		**State:** Indiana
			Plot ID: 10

Do Normal Circumstances exist on the site?	(Yes) No	**Community ID:** Upland
Is the site significantly disturbed (Atypical Situation:)?	Yes (No)	**Transect ID:** Area 4a
Is the area a potential Problem Area?	Yes (No)	**Field Location:**
(If needed, explain on the reverse side)		Data Point 10

VEGETATION (USFWS Region No. 3, Sub-Region, Chicago Region (S&W))

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicator
Helianthus divaricatus	Forb	UPL	*Pteridium aquilinum*	Herb	FACU
Woodland Sunflower			Fern,Bracken		
Quercus velutina	Tree	UPL	*Carex pensylvanica*	Sedge	UPL
Black Oak			Common Oak Sedge		

Percent of Dominant Species that are OBL, FACW or FAC: (excluding FAC-) 0/4 = 0.00%

FAC Neutral: 0/4 = 0.00%

Remarks:
None of the dominant species are hydrophytic, so the vegetation criterion is not satisfied.

HYDROLOGY

NO **Recorded Data(Describe in Remarks):**
- N/A **Stream, Lake or Tide Gauge**
- N/A **Aerial Photographs**
- N/A **Other**

YES **No Recorded Data**

Field Observations

Depth of Surface Water:	N/A *(in.)*
Depth to Free Water in Pit:	N/A *(in.)*
Depth to Saturated Soil:	> 29 *(in.)*

Wetland Hydrology Indicators

Primary Indicators
- NO **Inundated**
- NO **Saturated in Upper 12 Inches**
- NO **Water Marks**
- NO **Drift Lines**
- NO **Sediment Deposits**
- NO **Drainage Patterns in Wetlands**

Secondary Indicators
- NO **Oxidized Root Channels in Upper 12 Inches**
- NO **Water-Stained Leaves**
- NO **Local Soil Survey Data**
- NO **FAC-Neutral Test**
- NO **Other(Explain in Remarks)**

Remarks:
Saturated soil was not observed to a depth of 29 inches. This depth is too great to satisfy the hydrology criterion.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	J-Pit Redevelopment Project	**Project No:** 01210.w21	**Date:** 14-Jan-2002
Applicant/Owner:	City of Gary (DOEA)		**County:** Lake
Investigators:	Marc Wojtczak, Neil Molstad		**State:** Indiana
			Plot ID: 10

SOILS

Map Unit Name (Series and Phase): Oakville Fine Sand
Map Symbol: 741 **Drainage Class:** Excessively drained **Mapped Hydric Inclusion?**
Taxonomy (Subgroup): Typic Udlpsamments **Field Observations Confirm Mapped Type?** Yes (No)
Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast		Texture, Concretions, Structure, etc
0 - 3	A	10YR3/2	N/A	N/A	N/A	Loamy sand
3 - 26	Bw	10YR6/4	10YR4/6	Few	Distinct	Sand
26 - 29	C	10YR7/4	N/A	N/A	N/A	Sand

Hydric Soil Indicators:

NO **Histosol**	NO **Concretions**
NO **Histic Epipedon**	NO **High Organic Content in Surface Layer in Sandy Soils**
NO **Sulfidic Odor**	NO **Organic Streaking in Sandy Soils**
NO **Aquic Moisture Regime**	NO **Listed on Local Hydric Soils List**
NO **Reducing Conditions**	NO **Listed on National Hydric Soils List**
NO **Gleyed or Low Chroma Colors**	NO **Other (Explain in Remarks)**

Remarks:
Hydric indicators were not observed, so the soils criterion is not satisfied.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes (No)	Is the Sampling Point within the Wetland? Yes (No)
Wetland Hydrology Present?	Yes (No)	
Hydric Soils Present?	Yes (No)	

Remarks:
This location fails all three criteria and does not qualify as wetland.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	J-Pit Redevelopment Project	**Project No:** 01210.w21	**Date:** 14-Jan-2002
Applicant/Owner:	City of Gary (DOEA)		**County:** Lake
Investigators:	Marc Wojtczak, Neil Molstad		**State:** Indiana
			Plot ID: 12

Do Normal Circumstances exist on the site?	(Yes) No	**Community ID:** Upland
Is the site significantly disturbed (Atypical Situation:)?	Yes (No)	**Transect ID:** Area 4a
Is the area a potential Problem Area?	Yes (No)	**Field Location:**
(If needed, explain on the reverse side)		Data Point 12

VEGETATION **(USFWS Region No. 3, Sub-Region, Chicago Region (S&W))**

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicator
Rosa carolina	Shrub	FACU-	*Panicum virgatum*	Grass	FAC+
Rose,Carolina			Switchgrass		
Helianthus divaricatus	Forb	UPL	*Quercus velutina*	Tree	UPL
Woodland Sunflower			Black Oak		
Ammophila breviligulata	Grass	UPL*	*Carex pensylvanica*	Sedge	UPL
Marram Grass			Common Oak Sedge		
Andropogon gerardii	Grass	FAC-	*Agropyron repens*	Grass	FACU
Big Bluestem Grass			Quackgrass		
Schizachyrium scoparium	Grass	FACU-			
Bluestem,Little					

Percent of Dominant Species that are OBL, FACW or FAC: (excluding FAC-) 1/9 = 11.11%

FAC Neutral: 0/7 = 0.00%

Remarks:
Less than 50% of the dominant species are hydrophytic, so the vegetation criterion is not satisfied.

HYDROLOGY

NO **Recorded Data(Describe in Remarks):**
- N/A **Stream, Lake or Tide Gauge**
- N/A **Aerial Photographs**
- N/A **Other**

YES **No Recorded Data**

Field Observations

Depth of Surface Water:	N/A *(in.)*
Depth to Free Water in Pit:	N/A *(in.)*
Depth to Saturated Soil:	> 27 *(in.)*

Wetland Hydrology Indicators

Primary Indicators
- NO **Inundated**
- NO **Saturated in Upper 12 Inches**
- NO **Water Marks**
- NO **Drift Lines**
- NO **Sediment Deposits**
- NO **Drainage Patterns in Wetlands**

Secondary Indicators
- NO **Oxidized Root Channels in Upper 12 Inches**
- NO **Water-Stained Leaves**
- NO **Local Soil Survey Data**
- NO **FAC-Neutral Test**
- NO **Other(Explain in Remarks)**

Remarks:
Saturated soil was not observed to a depth of 27 inches. This depth is too great to satisfy the hydrology criterion.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	J-Pit Redevelopment Project	**Project No:** 01210.w21	**Date:** 14-Jan-2002
Applicant/Owner:	City of Gary (DOEA)		**County:** Lake
Investigators:	Marc Wojtczak, Neil Molstad		**State:** Indiana
			Plot ID: 12

SOILS

Map Unit Name (Series and Phase): Brems Loamy Sand
Map Symbol: Br **Drainage Class:** Moderately well drained **Mapped Hydric Inclusion?**
Taxonomy (Subgroup): Aquic Udipsamments **Field Observations Confirm Mapped Type?** Yes (No)
Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast		Texture, Concretions, Structure, etc
0 - 9	A	10YR2/1	N/A	N/A	N/A	Sandy loam
9 - 11	Bw1	10YR4/6	N/A	N/A	N/A	Sand
11 - 17	Bw2	10YR5/4	N/A	N/A	N/A	Sand
17 - 27	BC	10YR6/2	N/A	N/A	N/A	Sand

Hydric Soil Indicators:

NO **Histosol**	NO **Concretions**
NO **Histic Epipedon**	NO **High Organic Content in Surface Layer in Sandy Soils**
NO **Sulfidic Odor**	NO **Organic Streaking in Sandy Soils**
NO **Aquic Moisture Regime**	NO **Listed on Local Hydric Soils List**
NO **Reducing Conditions**	NO **Listed on National Hydric Soils List**
NO **Gleyed or Low Chroma Colors**	NO **Other (Explain in Remarks)**

Remarks:
Hydric indicators were not observed, so the the soils criterion is not satisfied.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes (No)	Is the Sampling Point within the Wetland? Yes (No)
Wetland Hydrology Present?	Yes (No)	
Hydric Soils Present?	Yes (No)	

Remarks:
This location fails all three criteria and does not qualify as wetland.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	J-Pit Redevelopment Project	**Project No:** 01210.w21	**Date:** 14-Jan-2002
Applicant/Owner:	City of Gary (DOEA)		**County:** Lake
Investigators:	Marc Wojtczak, Neil Molstad		**State:** Indiana
			Plot ID: 13

Do Normal Circumstances exist on the site?	(Yes) No	**Community ID:** Upland
Is the site significantly disturbed (Atypical Situation:)?	Yes (No)	**Transect ID:** Area 4a
Is the area a potential Problem Area?	Yes (No)	**Field Location:**
(If needed, explain on the reverse side)		Data Point 13

VEGETATION **(USFWS Region No. 3, Sub-Region, Chicago Region (S&W))**

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicator
Ambrosia trifida	Forb	FAC+	*Solidago altissima*	Forb	FACU
Giant Ragweed			Golden-Rod,Tall		
Poa pratensis	Grass	FAC-	*Glechoma hederacea*	Forb	FACU
Bluegrass,Kentucky			Creeping Charlie		
Fragaria virginiana	Forb	FAC-			
Strawberry,Virginia					

Percent of Dominant Species that are OBL, FACW or FAC: 1/5 = 20.00%
(excluding FAC-)

FAC Neutral: 0/2 = 0.00%

Remarks:
Less than 50% of the dominant species are hydrophytic, so the vegetation criterion is not satisfied.

HYDROLOGY

NO **Recorded Data(Describe In Remarks):**
- N/A **Stream, Lake or Tide Gauge**
- N/A **Aerial Photographs**
- N/A **Other**

YES **No Recorded Data**

Field Observations

Depth of Surface Water:	N/A *(in.)*
Depth to Free Water in Pit:	N/A *(in.)*
Depth to Saturated Soil:	> 27 *(in.)*

Wetland Hydrology Indicators

Primary Indicators
- NO **Inundated**
- NO **Saturated in Upper 12 Inches**
- NO **Water Marks**
- NO **Drift Lines**
- NO **Sediment Deposits**
- NO **Drainage Patterns in Wetlands**

Secondary Indicators
- NO **Oxidized Root Channels in Upper 12 Inches**
- NO **Water-Stained Leaves**
- NO **Local Soil Survey Data**
- NO **FAC-Neutral Test**
- NO **Other(Explain in Remarks)**

Remarks:
Saturated soil was not observed to a depth of 27 inches. This depth is too great to satisfy the hydrology criterion.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	J-Pit Redevelopment Project	**Project No:** 01210.w21	**Date:** 14-Jan-2002
Applicant/Owner:	City of Gary (DOEA)		**County:** Lake
Investigators:	Marc Wojtczak, Neil Molstad		**State:** Indiana
			Plot ID: 13

SOILS

Map Unit Name (Series and Phase): Made Land
Map Symbol: ML **Drainage Class:** unknown **Mapped Hydric Inclusion?** none
Taxonomy (Subgroup): Orthents **Field Observations Confirm Mapped Type?** Yes (No)
Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast		Texture, Concretions, Structure, etc
0 - 10	A	10YR3/3	N/A	N/A	N/A	Sand
10 - 27	Mixed Fill	10YR6/6	10R4/6	Few	Faint	Sand, mixed with 10YR3/2 & 10YR2/1 silty material

Hydric Soil Indicators:

NO **Histosol**	NO **Concretions**
NO **Histic Epipedon**	NO **High Organic Content in Surface Layer in Sandy Soils**
NO **Sulfidic Odor**	NO **Organic Streaking in Sandy Soils**
NO **Aquic Moisture Regime**	NO **Listed on Local Hydric Soils List**
NO **Reducing Conditions**	NO **Listed on National Hydric Soils List**
NO **Gleyed or Low Chroma Colors**	NO **Other (Explain in Remarks)**

Remarks:
Hydric indicators were not observed, so the soils criterion is not satisfied.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes (No)	Is the Sampling Point within the Wetland? Yes (No)
Wetland Hydrology Present?	Yes (No)	
Hydric Soils Present?	Yes (No)	

Remarks:
This location fails all three criteria and does not qualify as wetland.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	J-Pit Redevelopment Project	**Project No:** 01210.w21	**Date:** 3-Sep-2003
Applicant/Owner:	City of Gary (DOEA)		**County:** Lake
Investigators:	Marc Wojtczak, Louis Moran, Desiree Tazelaar		**State:** Indiana
			Plot ID: 15

Do Normal Circumstances exist on the site?	(Yes) No	**Community ID:** Upland
Is the site significantly disturbed (Atypical Situation:)?	Yes (No)	**Transect ID:** Area 4a
Is the area a potential Problem Area?	Yes (No)	**Field Location:**
(If needed, explain on the reverse side)		Data Point 15

VEGETATION **(USFWS Region No. 3, Sub-Region, Chicago Region (S&W))**

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicator
Salix interior	Shrub	OBL	*Phragmites australis*	Grass	FACW+
Sandbar Willow			Reed,Common		
Lespedeza capitata	Grass	FACU	*Solidago canadensis*	Forb	FACU
Bushclover,Round-Head			Golden-Rod,Canada		
Equisetum hyemale	Forb	FACW-			
Horsetail,Rough					

Percent of Dominant Species that are OBL, FACW or FAC: (excluding FAC-) 3/5 = 60.00%

FAC Neutral: 3/5 = 60.00%

Remarks:
Greater than 50% of the dominant species are hydrophytic, so the vegetation criterion is satisfied.

HYDROLOGY

NO **Recorded Data(Describe in Remarks):**
- N/A **Stream, Lake or Tide Gauge**
- N/A **Aerial Photographs**
- N/A **Other**

YES **No Recorded Data**

Field Observations

Depth of Surface Water:	N/A *(in.)*
Depth to Free Water in Pit:	N/A *(in.)*
Depth to Saturated Soil:	> 20 *(in.)*

Wetland Hydrology Indicators

Primary Indicators
- NO **Inundated**
- NO **Saturated in Upper 12 Inches**
- NO **Water Marks**
- NO **Drift Lines**
- NO **Sediment Deposits**
- NO **Drainage Patterns in Wetlands**

Secondary Indicators
- NO **Oxidized Root Channels in Upper 12 Inches**
- NO **Water-Stained Leaves**
- NO **Local Soil Survey Data**
- YES **FAC-Neutral Test**
- NO **Other(Explain in Remarks)**

Remarks:
Saturated soil was not observed to a depth of 20 inches. This depth is too great to satisfy the hydrology criterion.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	J-Pit Redevelopment Project	**Project No:** 01210.w21	**Date:** 3-Sep-2003
Applicant/Owner:	City of Gary (DOEA)		**County:** Lake
Investigators:	Marc Wojtczak, Louis Moran, Desiree Tazelaar		**State:** Indiana
			Plot ID: 15

SOILS

Map Unit Name (Series and Phase): Morocco Loamy Fine Sand, Taxadjunct
Map Symbol: 501t **Drainage Class:** Somewhat poorly drained **Mapped Hydric Inclusion?**
Taxonomy (Subgroup): Aquic Udipsamments **Field Observations Confirm Mapped Type?** Yes (No)
Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast		Texture, Concretions, Structure, etc
0 - 2	A	10YR3/1	N/A	N/A	N/A	Sand, many fine roots
2 - 6	AC	10YR4/3	N/A	N/A	N/A	Loamy sand, few fine roots
6 - 20	C1	2.5Y5/2	N/A	N/A	N/A	Loamy sand, n2.5/ krotovena

Hydric Soil Indicators:

NO **Histosol**	NO **Concretions**
NO **Histic Epipedon**	NO **High Organic Content in Surface Layer in Sandy Soils**
NO **Sulfidic Odor**	NO **Organic Streaking in Sandy Soils**
NO **Aquic Moisture Regime**	NO **Listed on Local Hydric Soils List**
NO **Reducing Conditions**	NO **Listed on National Hydric Soils List**
NO **Gleyed or Low Chroma Colors**	NO **Other (Explain in Remarks)**

Remarks:
Hydric indicators were not observed, so the soils criterion is not satisfied.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	(Yes) No	Is the Sampling Point within the Wetland? Yes (No)
Wetland Hydrology Present?	Yes (No)	
Hydric Soils Present?	Yes (No)	

Remarks:
This location fails the hydrology and soils criteria and does not qualify as wetland.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	J-Pit Redevelopment Project	**Project No:** 01210.w21	**Date:** 14-Jan-2002
Applicant/Owner:	City of Gary (DOEA)		**County:** Lake
Investigators:	Marc Wojtczak, Neil Molstad		**State:** Indiana
			Plot ID: 16

Do Normal Circumstances exist on the site?	(Yes) No	**Community ID:** Upland
Is the site significantly disturbed (Atypical Situation:)?	Yes (No)	**Transect ID:** Area 4a
Is the area a potential Problem Area?	Yes (No)	**Field Location:**
(If needed, explain on the reverse side)		Data Point 16

VEGETATION **(USFWS Region No. 3, Sub-Region, Chicago Region (S&W))**

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicator
Populus deltoides	Tree	FAC+	*Prunus serotina*	Tree	FACU
Cotton-Wood,Eastern			Cherry,Black		

Percent of Dominant Species that are OBL, FACW or FAC: (excluding FAC-) 1/2 = 50.00%

FAC Neutral: 0/1 = 0.00%

Remarks:
Only 50% of the dominant species are hydrophytic, so the vegetation criterion is not satisfied.

HYDROLOGY

NO **Recorded Data(Describe in Remarks):**
- N/A **Stream, Lake or Tide Gauge**
- N/A **Aerial Photographs**
- N/A **Other**

YES **No Recorded Data**

Field Observations

Depth of Surface Water:	N/A *(in.)*
Depth to Free Water in Pit:	N/A *(in.)*
Depth to Saturated Soil:	= 38 *(in.)*

Wetland Hydrology Indicators

Primary Indicators
- NO **Inundated**
- NO **Saturated in Upper 12 Inches**
- NO **Water Marks**
- NO **Drift Lines**
- NO **Sediment Deposits**
- NO **Drainage Patterns in Wetlands**

Secondary Indicators
- NO **Oxidized Root Channels in Upper 12 Inches**
- NO **Water-Stained Leaves**
- NO **Local Soil Survey Data**
- NO **FAC-Neutral Test**
- NO **Other(Explain in Remarks)**

Remarks:
Saturated soil was not observed to a depth of 38 inches. This depth is too great to satisfy the hydrology criterion.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	J-Pit Redevelopment Project	**Project No:** 01210.w21	**Date:** 14-Jan-2002
Applicant/Owner:	City of Gary (DOEA)		**County:** Lake
Investigators:	Marc Wojtczak, Neil Molstad		**State:** Indiana
			Plot ID: 16

SOILS

Map Unit Name (Series and Phase): Morocco loamy fine sand
Map Symbol: 501 **Drainage Class:** Somewhat poorly drained **Mapped Hydric Inclusion?**
Taxonomy (Subgroup): Aquic Udipsamments **Field Observations Confirm Mapped Type?** Yes (No)
Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast		Texture, Concretions, Structure, etc
0 - 7	Mixed Fill	5YR3/4	N/A	N/A	N/A	Sand, mixed with 10YR6/6 & 10YR5/2
7 - 28	Bw	10YR6/4	10YR4/6	Common	Distinct	Sand
28 - 38	BC	10YR7/3	10YR4/6	Few	Distinct	Sand

Hydric Soil Indicators:

NO **Histosol**	NO **Concretions**
NO **Histic Epipedon**	NO **High Organic Content in Surface Layer in Sandy Soils**
NO **Sulfidic Odor**	NO **Organic Streaking in Sandy Soils**
NO **Aquic Moisture Regime**	NO **Listed on Local Hydric Soils List**
NO **Reducing Conditions**	NO **Listed on National Hydric Soils List**
NO **Gleyed or Low Chroma Colors**	NO **Other (Explain in Remarks)**

Remarks:
Hydric indicators were not observed, so the soils criterion is not satisfied.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes (No)	Is the Sampling Point within the Wetland? Yes (No)
Wetland Hydrology Present?	Yes (No)	
Hydric Soils Present?	Yes (No)	

Remarks:
This location fails all three criteria and does not qualify as wetland.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	J-Pit Redevelopment Project	**Project No:** 01210.w21	**Date:** 14-Jan-2002
Applicant/Owner:	City of Gary (DOEA)		**County:** Lake
Investigators:	Marc Wojtczak, Neil Molstad		**State:** Indiana
			Plot ID: 17

Do Normal Circumstances exist on the site?	(Yes) No	**Community ID:** Upland
Is the site significantly disturbed (Atypical Situation:)?	Yes (No)	**Transect ID:** Area 4a
Is the area a potential Problem Area?	Yes (No)	**Field Location:**
(If needed, explain on the reverse side)		Data Point 17

VEGETATION **(USFWS Region No. 3, Sub-Region, Chicago Region (S&W))**

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicator
Spartina pectinata	Grass	FACW+	*Schizachyrium scoparium*	Grass	FACU-
Cordgrass,Prairie			Bluestem,Little		
Panicum virgatum	Grass	FAC+	*Helianthus divaricatus*	Forb	UPL
Switchgrass			Woodland Sunflower		

Percent of Dominant Species that are OBL, FACW or FAC: (excluding FAC-) 2/4 = 50.00%

FAC Neutral: 1/3 = 33.33%

Remarks:
Only 50% of the dominant species are hydrophytic, so the vegetation criterion is not satisfied.

HYDROLOGY

NO **Recorded Data(Describe in Remarks):**
- N/A **Stream, Lake or Tide Gauge**
- N/A **Aerial Photographs**
- N/A **Other**

YES **No Recorded Data**

Field Observations

Depth of Surface Water:	N/A *(in.)*
Depth to Free Water in Pit:	N/A *(in.)*
Depth to Saturated Soil:	> 36 *(in.)*

Wetland Hydrology Indicators

Primary Indicators
- NO **Inundated**
- NO **Saturated in Upper 12 Inches**
- NO **Water Marks**
- NO **Drift Lines**
- NO **Sediment Deposits**
- NO **Drainage Patterns in Wetlands**

Secondary Indicators
- NO **Oxidized Root Channels in Upper 12 Inches**
- NO **Water-Stained Leaves**
- NO **Local Soil Survey Data**
- NO **FAC-Neutral Test**
- NO **Other(Explain in Remarks)**

Remarks:
Saturated soil was not observed to a depth of 36 inches. This depth is too great to satisfy the hydrology criterion.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: J-Pit Redevelopment Project	**Project No:** 01210.w21	**Date:** 14-Jan-2002
Applicant/Owner: City of Gary (DOEA)		**County:** Lake
Investigators: Marc Wojtczak, Neil Molstad		**State:** Indiana
		Plot ID: 17

SOILS

Map Unit Name (Series and Phase): Made Land
Map Symbol: ML **Drainage Class:** unknown **Mapped Hydric Inclusion?** none
Taxonomy (Subgroup): Orthents **Field Observations Confirm Mapped Type?** Yes (No)
Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast		Texture, Concretions, Structure, etc
0 - 8	A	10YR2/1	N/A	N/A	N/A	Sandy loam
8 - 21	Mixed Fill	10YR2/1	N/A	N/A	N/A	Loamy sand, mixed with 10YR5/1
21 - 33	C1	10YR5/1	N/A	N/A	N/A	Sand
33 - 36	C2	10YR6/3	N/A	N/A	N/A	Sand

Hydric Soil Indicators:

NO **Histosol**	NO **Concretions**
NO **Histic Epipedon**	NO **High Organic Content in Surface Layer in Sandy Soils**
NO **Sulfidic Odor**	NO **Organic Streaking in Sandy Soils**
NO **Aquic Moisture Regime**	NO **Listed on Local Hydric Soils List**
NO **Reducing Conditions**	NO **Listed on National Hydric Soils List**
NO **Gleyed or Low Chroma Colors**	NO **Other (Explain in Remarks)**

Remarks:
Hydric indicators were not observed, so the soils criterion is not satisfied.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? Yes (No)	Is the Sampling Point within the Wetland? Yes (No)
Wetland Hydrology Present? Yes (No)	
Hydric Soils Present? Yes (No)	

Remarks:
This location fails all three criteria and does not qualify as wetland.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	J-Pit Redevelopment Project	**Project No:** 01210.w21	**Date:** 14-Jan-2002
Applicant/Owner:	City of Gary (DOEA)		**County:** Lake
Investigators:	Marc Wojtczak, Neil Molstad		**State:** Indiana
			Plot ID: 9

Do Normal Circumstances exist on the site?	(Yes) No	**Community ID:** Wetland
Is the site significantly disturbed (Atypical Situation:)?	Yes (No)	**Transect ID:** Area 4b
Is the area a potential Problem Area?	Yes (No)	**Field Location:**
(If needed, explain on the reverse side)		Data Point 9

VEGETATION **(USFWS Region No. 3, Sub-Region, Chicago Region (S&W))**

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicator
Helianthus grosseserratus	Forb	FACW-	*Lythrum salicaria*	Forb	OBL
Sunflower,Saw-Tooth			Loosestrife,Purple		
Typha angustifolia	Forb	OBL	*Scirpus fluviatilis*	Sedge	OBL
Narrow-leaved Cattail			Bulrush,River		

Percent of Dominant Species that are OBL, FACW or FAC: **(excluding FAC-)** 4/4 = 100.00%

FAC Neutral: 4/4 = 100.00%

Remarks:
All of the dominant species are hydrophytic, so the vegetation criterion is satisfied.

HYDROLOGY

NO **Recorded Data(Describe in Remarks):**
- N/A **Stream, Lake or Tide Gauge**
- N/A **Aerial Photographs**
- N/A **Other**

YES **No Recorded Data**

Field Observations

Depth of Surface Water:	N/A *(in.)*
Depth to Free Water in Pit:	N/A *(in.)*
Depth to Saturated Soil:	= 10 *(in.)*

Wetland Hydrology Indicators

Primary Indicators
- NO **Inundated**
- YES **Saturated in Upper 12 Inches**
- NO **Water Marks**
- NO **Drift Lines**
- NO **Sediment Deposits**
- NO **Drainage Patterns in Wetlands**

Secondary Indicators
- YES **Oxidized Root Channels in Upper 12 Inches**
- NO **Water-Stained Leaves**
- NO **Local Soil Survey Data**
- YES **FAC-Neutral Test**
- NO **Other(Explain in Remarks)**

Remarks:
Saturated soil was observed at a depth of 10 inches. This observation satisfies the hydrology criterion.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	J-Pit Redevelopment Project	**Project No:** 01210.w21	**Date:** 14-Jan-2002
Applicant/Owner:	City of Gary (DOEA)		**County:** Lake
Investigators:	Marc Wojtczak, Neil Molstad		**State:** Indiana
			Plot ID: 9

SOILS

Map Unit Name (Series and Phase): Adrian Muck, Taxadjunct
Map Symbol: 777t **Drainage Class:** Very poorly drained **Mapped Hydric Inclusion?**
Taxonomy (Subgroup): Terric Haplosaprists **Field Observations Confirm Mapped Type?** Yes (No)
Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast		Texture, Concretions, Structure, etc
0 - 20	A	10YR2/1	N/A	N/A	N/A	Loam, mucky; oxidized root channels
20 - 28	C	10YR5/2	10YR4/6	Common	Distinct	Sand

Hydric Soil Indicators:

YES **Histosol**	NO **Concretions**
NO **Histic Epipedon**	NO **High Organic Content in Surface Layer in Sandy Soils**
NO **Sulfidic Odor**	NO **Organic Streaking in Sandy Soils**
NO **Aquic Moisture Regime**	YES **Listed on Local Hydric Soils List**
NO **Reducing Conditions**	YES **Listed on National Hydric Soils List**
YES **Gleyed or Low Chroma Colors**	NO **Other (Explain in Remarks)**

Remarks:
This soil profile exhibits hydric soil field indicator F1, Loamy Mucky Mineral, and satisfies the soils criterion.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	(Yes)	No	Is the Sampling Point within the Wetland? (Yes) No
Wetland Hydrology Present?	(Yes)	No	
Hydric Soils Present?	(Yes)	No	

Remarks:
This location satisfies all three criteria and qualifies as wetland.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	J-Pit Redevelopment Project	**Project No:** 01210.w21	**Date:** 14-Jan-2002
Applicant/Owner:	City of Gary (DOEA)		**County:** Lake
Investigators:	Marc Wojtczak, Neil Molstad		**State:** Indiana
			Plot ID: 11

Do Normal Circumstances exist on the site?	(Yes) No	**Community ID:** Wetland
Is the site significantly disturbed (Atypical Situation:)?	Yes (No)	**Transect ID:** Area 4b
Is the area a potential Problem Area?	(Yes) No	**Field Location:**
(If needed, explain on the reverse side)		Data Point 11

VEGETATION **(USFWS Region No. 3, Sub-Region, Chicago Region (S&W))**

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicator
Phalaris arundinacea	Grass	FACW+	*Helianthus grosseserratus*	Forb	FACW-
Reed Canary Grass			Sunflower,Saw-Tooth		
Lythrum salicaria	Forb	OBL	*Calamagrostis canadensis*	Grass	OBL
Loosestrife,Purple			Blue Joint Grass		

Percent of Dominant Species that are OBL, FACW or FAC: **(excluding FAC-)** 4/4 = 100.00%

FAC Neutral: 4/4 = 100.00%

Remarks:
All of the dominant species are hydrophytic, so the vegetation criterion is satisfied.

HYDROLOGY

NO **Recorded Data(Describe in Remarks):**
- N/A **Stream, Lake or Tide Gauge**
- N/A **Aerial Photographs**
- N/A **Other**

YES **No Recorded Data**

Field Observations

Depth of Surface Water:	N/A *(in.)*
Depth to Free Water in Pit:	N/A *(in.)*
Depth to Saturated Soil:	= 15 *(in.)*

Wetland Hydrology Indicators

Primary Indicators
- NO **Inundated**
- NO **Saturated in Upper 12 Inches**
- NO **Water Marks**
- NO **Drift Lines**
- NO **Sediment Deposits**
- YES **Drainage Patterns in Wetlands**

Secondary Indicators
- NO **Oxidized Root Channels in Upper 12 Inches**
- NO **Water-Stained Leaves**
- NO **Local Soil Survey Data**
- YES **FAC-Neutral Test**
- NO **Other(Explain in Remarks)**

Remarks:
The presence of primary (low landscape position/draingae patterns) and secondary (positive FAC-neutral Test) wetland hydrology indicators satisfies the hydrology criterion.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	J-Pit Redevelopment Project	**Project No:** 01210.w21	**Date:** 14-Jan-2002
Applicant/Owner:	City of Gary (DOEA)		**County:** Lake
Investigators:	Marc Wojtczak, Neil Molstad		**State:** Indiana
			Plot ID: 11

SOILS

Map Unit Name (Series and Phase): Granby Loamy Fine Sand
Map Symbol: 513 **Drainage Class:** poorly drained **Mapped Hydric Inclusion?** Marsh
Taxonomy (Subgroup): Typic Haplaquolls **Field Observations Confirm Mapped Type?** Yes (No)
Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast		Texture, Concretions, Structure, etc
0 - 8	A	10YR2/1	N/A	N/A	N/A	Loam
8 - 27	Bg	10YR5/2	10YR4/1	Common	Prominent	Sand, 10YR2/1 organic stains

Hydric Soil Indicators:

NO **Histosol**	NO **Concretions**
NO **Histic Epipedon**	NO **High Organic Content in Surface Layer in Sandy Soils**
NO **Sulfidic Odor**	NO **Organic Streaking in Sandy Soils**
YES **Aquic Moisture Regime**	YES **Listed on Local Hydric Soils List**
NO **Reducing Conditions**	YES **Listed on National Hydric Soils List**
YES **Gleyed or Low Chroma Colors**	NO **Other (Explain in Remarks)**

Remarks:
Although no hydric soil field indicators were observed at this location, this profile satisfies the soils criterion. A complete explanation is provided at the bottom of this dataform.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	(Yes)	No	Is the Sampling Point within the Wetland? (Yes) No
Wetland Hydrology Present?	(Yes)	No	
Hydric Soils Present?	(Yes)	No	

Remarks:
This location satisfies all three criteria and qualifies as wetland.

Explanation for response to: Normal Circumstances? Atypical Situation ? Potential Problem Area ?
Although no hydric soil field indicators were observed at this location, the soil profile is classified taxonomically as poorly drained. Additional evidence such as the depressional landscape position of the location and saturated conditions close to the upper portion of the profile suggest saturated conditions exist at the location for significant portions of the growing season, satisfying the soils criterion.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	J-Pit Redevelopment Project	**Project No:** 01210.w21	**Date:** 3-Sep-2003
Applicant/Owner:	City of Gary (DOEA)		**County:** Lake
Investigators:	Marc Wojtczak, Louis Moran, Desiree Tazelaar		**State:** Indiana
			Plot ID: 14

Do Normal Circumstances exist on the site?	(Yes) No	**Community ID:** Wetland, Borrow pit
Is the site significantly disturbed (Atypical Situation:)?	Yes (No)	**Transect ID:** Area 4c
Is the area a potential Problem Area?	Yes (No)	**Field Location:**
(If needed, explain on the reverse side)		Data Point 14

VEGETATION **(USFWS Region No. 3, Sub-Region, Chicago Region (S&W))**

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicator
Phragmites australis	Grass	FACW+	*Equisetum hyemale*	Forb	FACW-
Reed,Common			Horsetail,Rough		
Cyperus filiculmis	Sedge	FACU-	*Salix discolor*	Shrub	FACW
Flatsedge,Slender			Willow,Pussy		
Lythrum salicaria	Forb	OBL	*Agalinis purpurea*	Forb	FACW
Loosestrife,Purple			False-Foxglove,Large Purple		

Percent of Dominant Species that are OBL, FACW or FAC: (excluding FAC-) 5/6 = 83.33%

FAC Neutral: 5/6 = 83.33%

Remarks:
Greater than 50% of the dominant species are hydrophytic, so the vegetation criterion is satisfied.

HYDROLOGY

NO **Recorded Data(Describe in Remarks):**
- N/A **Stream, Lake or Tide Gauge**
- N/A **Aerial Photographs**
- N/A **Other**

YES **No Recorded Data**

Field Observations

Depth of Surface Water:	N/A *(in.)*
Depth to Free Water in Pit:	N/A *(in.)*
Depth to Saturated Soil:	= 5 *(in.)*

Wetland Hydrology Indicators

Primary Indicators
- NO **Inundated**
- YES **Saturated in Upper 12 Inches**
- NO **Water Marks**
- NO **Drift Lines**
- NO **Sediment Deposits**
- NO **Drainage Patterns in Wetlands**

Secondary Indicators
- YES **Oxidized Root Channels in Upper 12 Inches**
- NO **Water-Stained Leaves**
- NO **Local Soil Survey Data**
- YES **FAC-Neutral Test**
- NO **Other(Explain in Remarks)**

Remarks:
The presence of primary (saturation within upper 12 inches of soil) and secondary (oxidized root channels, positive FAC-neutral Test) wetland hydrology indicators satisfies the hydrology criterion.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	J-Pit Redevelopment Project	**Project No:** 01210.w21	**Date:** 3-Sep-2003
Applicant/Owner:	City of Gary (DOEA)		**County:** Lake
Investigators:	Marc Wojtczak, Louis Moran, Desiree Tazelaar		**State:** Indiana
			Plot ID: 14

SOILS

Map Unit Name (Series and Phase): Made Land, Aquents
Map Symbol: MLA **Drainage Class:** Unknown **Mapped Hydric Inclusion?**
Taxonomy (Subgroup): Aquents **Field Observations Confirm Mapped Type?** Yes (No)
Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast		Texture, Concretions, Structure, etc
0 - 2	A	2.5Y2.5/1	7.5YR3/3	Few	Prominent	Loamy sand, many fine roots
			7.5YR3/4	Few	Prominent	
2 - 4	ACg	10YR3/1	10YR3/6	Few	Prominent	Loamy sand, mixed w/ 2.5Y4/1 & 6/2; straified w/ large roots
4 - 11	Cg1	2.5Y4/1	10YR4/6	Few	Prominent	Loamy sand, oxidized root channels
11 - 20	Cg2	2.5Y5/1	10YR4/6	Few	Prominent	Loamy sand, mixed w/ 2.5Y5/2
20 - 28	Cg3	5Y4/1	10YR4/6	Common	Prominent	Loamy sand
			2.5Y5/4	Few	Prominent	

Hydric Soil Indicators:

NO **Histosol**	NO **Concretions**
NO **Histic Epipedon**	YES **High Organic Content In Surface Layer in Sandy Soils**
NO **Sulfidic Odor**	NO **Organic Streaking in Sandy Soils**
YES **Aquic Moisture Regime**	NO **Listed on Local Hydric Soils List**
YES **Reducing Conditions**	NO **Listed on National Hydric Soils List**
YES **Gleyed or Low Chroma Colors**	NO **Other (Explain in Remarks)**

Remarks:
This soil exhbits hydric soil field indicator F1, Loamy Mucky Mineral and F6, Redox Dark Surface, and satisfies the soils criterion.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	(Yes)	No	Is the Sampling Point within the Wetland? (Yes) No
Wetland Hydrology Present?	(Yes)	No	
Hydric Soils Present?	(Yes)	No	

Remarks:
This location satisfies all three criteria and qualifies as wetland.

APPENDIX II:

DELINEATION METHODS AND SITE ANALYSIS

Wetland Delineation Methods

The site was field-inspected and plant species lists were recorded to document the vegetation types present. Wetland indicator categories are assigned to each plant species based on a regional list published by the U.S. Fish and Wildlife Service in 1988. The categories are based on the estimated probability that a species would be naturally encountered in a wetland. Under the *Corps of Engineers Wetlands Delineation Manual* (1987), if more than 50% of the dominant plant species in a given area are in the categories FAC (excluding FAC-), FACW, or OBL, then the area is considered to be dominated by hydrophytic vegetation and representative of a wetland plant community.

Plant Indicator Status Categories

Indicator Category	Indicator Symbol	Definition
Obligate Wetland Plants	OBL	Plants that occur almost always (estimated probability greater than 99%) in wetlands under natural conditions, but which may also occur rarely in non-wetlands.
Facultative Wetland Plants	FACW	Plants that usually occur in wetlands (estimated probability 67% to 99%), but occasionally are found in non-wetlands.
Facultative Plants	FAC	Plants with a similar likelihood (estimated probability 33% to 67%) of occurring in both wetlands and non-wetlands.
Facultative Upland Plants	FACU	Plants that usually occur in non-wetlands (estimated probability 67% to 99%) but occasionally are found in wetlands.
Obligate Upland Plants	UPL	Plants that occur almost always (estimated probability greater than 99%) in non-wetlands under natural conditions, but which may also occur rarely in wetlands.

In addition to hydrophytic dominance, each suspected wetland must also exhibit wetland hydrology and hydric soil characteristics. The hydrology and soils are described in the field based on samples obtained using a hand soil probe.

As defined in the Federal Register (*Federal Register, Volume 59*: July 13, 1994), "A hydric soil is a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part." According to the National

Technical Committee for Hydric Soils (NTCHS), documentation of the presence or absence of a hydric soil can only be determined through on-site investigation, not strictly by its classification. Consequently, the presence of a soil on a hydric soil list does not mean that the soil is hydric. Soils are identified as hydric if they possess certain field indicators, as defined in the *Field Indicators of Hydric Soils in the United States* (USDA, NRCS, Version 4.0, March 1998). However, some hydric soils lack the currently listed hydric indicators.

The absence of an indicator in a soil does not exclude that soil from being classified as hydric. Soil series, soil color, the presence of mottling or gleying, and depth to water table are determined and recorded in the field. These features, when present, may indicate a hydric soil when hydric soil field indicators are absent. To properly use hydric soil field indicators, a basic knowledge of soil landscape relationships and soil survey procedures is necessary. Soils reported herein are classified in accordance with *Soil Taxonomy*, Agriculture Handbook AH-436, U.S. Department of Agriculture.

Determinations of hydrology are based on observations of inundation, soil saturation in the soil core, permanent watermarks, and other recognized wetland hydrology indicators.

Floristic Quality Assessment

Plant communities of the site were evaluated with the Floristic Quality Assessment (FQA) methodology, a widely used technique used for rapid assessment of the floristic quality in a defined area or plant community. In using FQA, the presence of each plant species is recorded, generating a species inventory. This inventory is entered into computer software that was used to generate the species lists used in this report. Floristic quality calculations are also generated that provides a compilation of various floristic quality data, resulting in a determination of the floristic quality of the subject area.

The floristic quality data for an area partially indicates its quality as a natural area (i.e., relative to pre-settlement or disturbance). One indicator of the degree of disturbance and vegetative quality at an area is the calculated Native Floristic Quality Index (Native FQI). A high Native FQI value indicates a high-quality natural area, but how high the Native FQI must be for an area to be of high quality is a subjective determination. In general, a wetland (or other defined area) with a Native FQI greater than 20.00 from a single observation may be considered a moderately high quality plant community. These areas have a high potential for containing more conservative or high-quality plant species. Therefore, adverse impacts to wetlands and subsequent proposals for compensatory mitigation may be scrutinized carefully by the regulatory agencies.

A high number of native species with high coefficients of conservatism, C (a subjective measure of quality based on relative tolerance to disturbance; weedy species are highly disturbance tolerant, and are lower ranked), will result in a high Native FQI. The C value is based on the relative rarity of a species and/or the resiliency of a species following disturbance. Coefficients of conservatism for native plant species range from 0 for ubiquitous, weedy species to 10 for rare, highly conservative species. Adventive species are not assigned a C value for the calculations. Adventive species are exotic or non-native species that have entered the Chicago region since European settlement. These species generally do not lend themselves to increased floristic quality, but instead appear after a disturbance. Thus, a high proportion of these species in a given area or community may be an indication of a lower quality plant community.

The Native FQI essentially is equivalent to the calculated Native Index (NI) or Natural Areas Rating Index (NARI) from earlier versions of the FQA method (known as the Open Lands Assessment method, or more simply as the Wilhelm Index). The current FQA is a revision of the original technique described in the *Plants of the Chicago Region* (Swink and Wilhelm, 1979). Technical names in the FQA and this report follow the nomenclature of *Plants of the Chicago Region* (Swink and Wilhelm, 1994).

The wetness coefficient (W, ranging from -5 to +5) refers to the corresponding wetland indicator status (e.g., OBL = obligate wetland species, -5; FAC = facultative species, 0; UPL = upland species, +5) for U.S. Fish and Wildlife Service Region 3 (Illinois, Michigan, Indiana, Missouri, Iowa, Wisconsin, and Minnesota). A wetland indicator status noted in brackets (e.g., [FACW]) is a modification of the Region 3 indicator status to apply locally in the 22-county Chicago region covered by Plants of the Chicago Region. The Wetness coefficient is useful in evaluating the general "wetness" affinity of a sampled plant community. If the average indicator status among all species present is in the FAC, FACW, or OBL classes, then the plant community may be considered hydrophytic.

Table 2. All Plant Species Observed by V3 Consultants at the J-Pit Redevelopment Project.

FLORISTIC QUALITY DATA						
260 NATIVE SPECIES	Native	260	80.0%	Adventive	65	20.0%
325 Total Species	Tree	19	5.8%	Tree	8	2.5%
4.6 NATIVE MEAN C	Shrub	26	8.0%	Shrub	6	1.8%
3.7 W/Adventives	W-Vine	5	1.5%	W-Vine	1	0.3%
73.6 NATIVE FQI	H-Vine	3	0.9%	H-Vine	0	0.0%
65.8 W/Adventives	P-Forb	139	42.8%	P-Forb	17	5.2%
0.3 NATIVE MEAN W	B-Forb	10	3.1%	B-Forb	15	4.6%
0.8 W/Adventives	A-Forb	13	4.0%	A-Forb	8	2.5%
AVG: Facultative	P-Grass	17	5.2%	P-Grass	6	1.8%
	A-Grass	3	0.9%	A-Grass	4	1.2%
	P-Sedge	16	4.9%	P-Sedge	0	0.0%
	A-Sedge	1	0.3%	A-Sedge	0	0.0%
	Cryptogam	8	2.5%			

ACRONYM	C	SCIENTIFIC NAME	W	WETNESS	PHYSIOGNOMY	COMMON NAME
ACENEG	0	Acer negundo	-2	FACW-	Nt Tree	BOX ELDER
ACERUB	7	Acer rubrum	0	FAC	Nt Tree	RED MAPLE
ACESAI	0	Acer saccharinum	-3	FACW	Nt Tree	SILVER MAPLE
ACESAU	3	Acer saccharum	3	FACU	Nt Tree	SUGAR MAPLE
ACHMIL	0	ACHILLEA MILLEFOLIUM	3	FACU	Ad P-Forb	YARROW
AGAPUU	6	Agalinis purpurea	-3	FACW	Nt A-Forb	PURPLE FALSE FOXGLOVE
AGRGRY	2	Agrimonia gryposepala	2	FACU+	Nt P-Forb	TALL AGRIMONY
AGRPAR	7	Agrimonia parviflora	-1	FAC+	Nt P-Forb	SWAMP AGRIMONY
AGRPUB	5	Agrimonia pubescens	5	UPL	Nt P-Forb	SOFT AGRIMONY
AGRREP	0	AGROPYRON REPENS	3	FACU	Ad P-Grass	QUACK GRASS
AGRALA	0	AGROSTIS ALBA	-3	FACW	Ad P-Grass	REDTOP
AILALT	0	AILANTHUS ALTISSIMA	5	UPL	Ad Tree	TREE OF HEAVEN
ALISUB	4	Alisma subcordatum	-5	OBL	Nt P-Forb	COMMON WATER PLANTAIN
ALLPET	0	ALLIARIA PETIOLATA	0	FAC	Ad B-Forb	GARLIC MUSTARD
ALLTRT	7	Allium tricoccum	3	FACU	Nt P-Forb	WILD LEEK
AMBARE	0	Ambrosia a. elatior	3	FACU	Nt A-Forb	COMMON RAGWEED
AMBTRI	0	Ambrosia trifida	-1	FAC+	Nt A-Forb	GIANT RAGWEED
AMEARB	8	Amelanchier arborea	3	FACU	Nt Tree	SERVICEBERRY
AMMBRE	7	Ammophila breviligulata	5	UPL	Nt P-Grass	MARRAM GRASS
AMPBRB	4	Amphicarpaea bracteata	0	FAC	Nt P-Forb	UPLAND HOG PEANUT
ANDGER	5	Andropogon gerardii	1	FAC-	Nt P-Grass	BIG BLUESTEM GRASS
ANDSCO	5	Andropogon scoparius	4	FACU-	Nt P-Grass	LITTLE BLUESTEM GRASS
ANECYL	6	Anemone cylindrica	5	UPL	Nt P-Forb	THIMBLEWEED
ANEQUI	7	Anemone quinquefolia	5	[UPL]	Nt P-Forb	WOOD ANEMONE
ANETHA	7	Anemonella thalictroides	5	UPL	Nt P-Forb	RUE ANEMONE
ANTNEG	4	Antennaria neglecta	5	UPL	Nt P-Forb	CAT'S FOOT
ANTPLA	3	Antennaria plantaginifolia	5	UPL	Nt P-Forb	PUSSY TOES
APIAME	7	Apios americana	-3	FACW	Nt P-Forb	GROUND NUT
APOAND	5	Apocynum androsaemifolium	5	UPL	Nt P-Forb	SPREADING DOGBANE
APOCAN	4	Apocynum cannabinum	0	FAC	Nt P-Forb	INDIAN HEMP
APOSIB	2	Apocynum sibiricum	-1	FAC+	Nt P-Forb	PRAIRIE INDIAN HEMP
AQUCAN	6	Aquilegia canadensis	1	FAC-	Nt P-Forb	WILD COLUMBINE
ARALYR	5	Arabis lyrata	4	FACU-	Nt B-Forb	SAND CRESS
ARANUD	8	Aralia nudicaulis	3	FACU	Nt Shrub	WILD SARSAPARILLA
ARCMIN	0	ARCTIUM MINUS	5	UPL	Ad B-Forb	COMMON BURDOCK
ARTCAU	5	Artemisia caudata	5	UPL	Nt B-Forb	BEACH WORMWOOD
ASCSYR	0	Asclepias syriaca	5	UPL	Nt P-Forb	COMMON MILKWEED
ASPOFF	0	ASPARAGUS OFFICINALIS	3	FACU	Ad P-Forb	ASPARAGUS
ASTDUM	5	Aster dumosus	-1	FAC+	Nt P-Forb	RICE-BUTTON ASTER
ASTERI	5	Aster ericoides	4	FACU-	Nt P-Forb	HEATH ASTER
ASTLAE	9	Aster laevis	5	UPL	Nt P-Forb	SMOOTH BLUE ASTER
ASTLAT	4	Aster lateriflorus	-2	FACW-	Nt P-Forb	SIDE-FLOWERING ASTER
ASTNOV	4	Aster novae-angliae	-3	FACW	Nt P-Forb	NEW ENGLAND ASTER
ASTPIL	0	Aster pilosus	2	FACU+	Nt P-Forb	HAIRY ASTER
ASTPRA	9	Aster praealtus	-5	[OBL]	Nt P-Forb	WILLOW ASTER
ASTSAS	5	Aster sagittifolius	5	UPL	Nt P-Forb	ARROW-LEAVED ASTER
ASTSIS	3	Aster simplex	-5	OBL	Nt P-Forb	PANICLED ASTER
ASTUMB	9	Aster umbellatus	-3	FACW	Nt P-Forb	FLAT-TOP ASTER
AURFLA	9	Aureolaria flava	5	UPL	Nt P-Forb	SMOOTH FALSE FOXGLOVE
BARVUL	0	BARBAREA VULGARIS	0	FAC	Ad B-Forb	YELLOW ROCKET
BOECYC	2	Boehmeria cylindrica	-5	OBL	Nt P-Forb	FALSE NETTLE
BOTVIR	6	Botrychium virginianum	3	FACU	Cryptogam	RATTLESNAKE FERN
BROJAP	0	BROMUS JAPONICUS	3	FACU	Ad A-Grass	JAPANESE CHESS
BROTEC	0	BROMUS TECTORUM	5	UPL	Ad A-Grass	DOWNY BROME

Table 2 (cont.). All Plant Species Observed by V3 Consultants at the J-Pit Redevelopment Project.

ACRONYM	C	SCIENTIFIC NAME	W	WETNESS	PHYSIOGNOMY	COMMON NAME
CALCAN	3	Calamagrostis canadensis	-5	OBL	Nt P-Grass	BLUE JOINT GRASS
CALTPA	5	Caltha palustris	-5	OBL	Nt P-Forb	MARSH MARIGOLD
CAMAPA	8	Campanula aparinoides	-5	OBL	Nt P-Forb	MARSH BELLFLOWER
CARPEN	4	Cardamine pensylvanica	-4	FACW+	Nt B-Forb	PENNSYLVANIA BITTER CRESS
CXATHE	5	Carex atherodes	-5	OBL	Nt P-Sedge	HAIRY-LEAVED LAKE SEDGE
CXHAYD	6	Carex haydenii	-5	OBL	Nt P-Sedge	LONG-SCALED TUSSOCK SEDGE
CXLACU	6	Carex lacustris	-5	OBL	Nt P-Sedge	COMMON LAKE SEDGE
CXMUHL	5	Carex muhlenbergii	5	UPL	Nt P-Sedge	SAND BRACTED SEDGE
CXPELL	4	Carex pellita	-5	OBL	Nt P-Sedge	BROAD-LEAVED WOOLLY SEDGE
CXPENS	5	Carex pensylvanica	5	UPL	Nt P-Sedge	COMMON OAK SEDGE
CXSCOP	7	Carex scoparia	-3	FACW	Nt P-Sedge	LANCE-FRUITED OVAL SEDGE
CXSICC	10	Carex siccata	-5	OBL	Nt P-Sedge	RUNNING SAVANNA SEDGE
CXSTRI	5	Carex stricta	-5	OBL	Nt P-Sedge	COMMON TUSSOCK SEDGE
CXVULP	2	Carex vulpinoidea	-5	OBL	Nt P-Sedge	BROWN FOX SEDGE
CATSPE	0	CATALPA SPECIOSA	3	FACU	Ad Tree	HARDY CATALPA
CEAAME	6	Ceanothus americanus	5	UPL	Nt Shrub	NEW JERSEY TEA
CELOCC	3	Celtis occidentalis	1	FAC-	Nt Tree	HACKBERRY
CENLON	0	Cenchrus longispinus	5	UPL	Nt A-Grass	SANDBUR
CENMAC	0	CENTAUREA MACULOSA	5	UPL	Ad B-Forb	SPOTTED KNAPWEED
CEPOCC	5	Cephalanthus occidentalis	-5	OBL	Nt Shrub	BUTTONBUSH
CERNUT	0	Cerastium nutans	2	FACU+	Nt A-Forb	NODDING CHICKWEED
CHEALB	0	CHENOPODIUM ALBUM	1	FAC-	Ad A-Forb	LAMB'S QUARTERS
CICINT	0	CICHORIUM INTYBUS	5	UPL	Ad P-Forb	CHICORY
CICMAC	6	Cicuta maculata	-5	OBL	Nt P-Forb	WATER HEMLOCK
CINARU	5	Cinna arundinacea	-3	FACW	Nt P-Grass	COMMON WOOD REED
CIRLUC	1	Circaea l. canadensis	3	FACU	Nt P-Forb	ENCHANTER'S NIGHTSHADE
CIRDIS	2	Cirsium discolor	5	UPL	Nt B-Forb	PASTURE THISTLE
CIRMUT	10	Cirsium muticum	-5	OBL	Nt B-Forb	SWAMP THISTLE
CIRVUL	0	CIRSIUM VULGARE	4	FACU-	Ad B-Forb	BULL THISTLE
COMUMB	7	Comandra umbellata	3	FACU	Nt P-Forb	FALSE TOADFLAX
COMCOM	0	COMMELINA COMMUNIS	0	FAC	Ad A-Forb	COMMON DAY FLOWER
CONSEP	1	Convolvulus sepium	0	FAC	Nt P-Forb	HEDGE BINDWEED
CORLAN	5	Coreopsis lanceolata	3	FACU	Nt P-Forb	SAND COREOPSIS
CORPAL	6	Coreopsis palmata	5	UPL	Nt P-Forb	PRAIRIE COREOPSIS
CORTRP	5	Coreopsis tripteris	0	FAC	Nt P-Forb	TALL COREOPSIS
CORRAC	1	Cornus racemosa	-2	FACW-	Nt Shrub	GRAY DOGWOOD
CORSTO	6	Cornus stolonifera	-3	FACW	Nt Shrub	RED-OSIER DOGWOOD
CORAME	5	Corylus americana	4	FACU-	Nt Shrub	AMERICAN HAZELNUT
CRYCAN	2	Cryptotaenia canadensis	0	FAC	Nt P-Forb	HONEWORT
CUSGRO	4	Cuscuta gronovii	-5	[OBL]	Nt A-Forb	COMMON DODDER
CYPFIL	5	Cyperus filiculmis	4	FACU-	Nt P-Sedge	SLENDER SAND SEDGE
CYPRIV	4	Cyperus rivularis	-4	FACW+	Nt A-Sedge	BROOK NUT SEDGE
CYPSCH	5	Cyperus schweinitzii	5	[UPL]	Nt P-Sedge	ROUGH SAND SEDGE
CYPCPU	10	Cypripedium c. pubescens	-1	[FAC+]	Nt P-Forb	LARGE YELLOW LADY'S SLIPPER
DACGLO	0	DACTYLIS GLOMERATA	3	FACU	Ad P-Grass	ORCHARD GRASS
DAUCAR	0	DAUCUS CAROTA	5	UPL	Ad B-Forb	QUEEN ANNE'S LACE
DESGLU	5	Desmodium glutinosum	5	UPL	Nt P-Forb	POINTED TICK TREFOIL
DIOVIL	7	Dioscorea villosa	1	FAC-	Nt H-Vine	WILD YAM
DIPLAC	0	DIPSACUS LACINIATUS	5	UPL	Ad B-Forb	CUT-LEAVED TEASEL
DRYTHP	6	Dryopteris t. pubescens	-5	[OBL]	Cryptogam	MARSH SHIELD FERN
ECHLOB	5	Echinocystis lobata	-2	FACW-	Nt H-Vine	WILD CUCUMBER
ELEACI	2	Eleocharis acicularis	-5	OBL	Nt P-Sedge	NEEDLE SPIKE RUSH
ELEERY	2	Eleocharis erythropoda	-5	OBL	Nt P-Sedge	RED-ROOTED SPIKE RUSH
ELYCAN	4	Elymus canadensis	1	FAC-	Nt P-Grass	CANADA WILD RYE
ELYVIR	4	Elymus virginicus	-2	FACW-	Nt P-Grass	VIRGINIA WILD RYE
EQUARV	0	Equisetum arvense	0	FAC	Cryptogam	HORSETAIL
EQUHYE	3	Equisetum hyemale	-2	FACW-	Cryptogam	TALL SCOURING RUSH
ERASPE	3	Eragrostis spectabilis	5	UPL	Nt P-Grass	PURPLE LOVE GRASS
ERIANS	0	Erigeron annuus	1	FAC-	Nt B-Forb	ANNUAL FLEABANE
ERICAN	0	Erigeron canadensis	1	FAC-	Nt A-Forb	HORSEWEED
ERIPHI	4	Erigeron philadelphicus	-3	FACW	Nt P-Forb	MARSH FLEABANE
ERISTR	5	Erigeron strigosus	5	[UPL]	Nt B-Forb	DAISY FLEABANE
EUOEUR	0	EUONYMUS EUROPAEUS	5	UPL	Ad Shrub	EUROPEAN SPINDLE TREE
EUOOBO	7	Euonymus obovatus	5	UPL	Nt Shrub	RUNNING STRAWBERRY BUSH
EUPALT	0	Eupatorium altissimum	3	[FACU]	Nt P-Forb	TALL BONESET
EUPMAM	4	Eupatorium maculatum	-5	OBL	Nt P-Forb	SPOTTED JOE PYE WEED
EUPPER	4	Eupatorium perfoliatum	-4	FACW+	Nt P-Forb	COMMON BONESET

Table 2 (cont.). All Plant Species Observed by V3 Consultants at the J-Pit Redevelopment Project.

ACRONYM	C	SCIENTIFIC NAME	W	WETNESS	PHYSIOGNOMY	COMMON NAME
EUPRUG	4	Eupatorium rugosum	5	UPL	Nt P-Forb	WHITE SNAKEROOT
EUPSEM	0	Eupatorium serotinum	-1	FAC+	Nt P-Forb	LATE BONESET
EUPCOR	2	Euphorbia corollata	5	UPL	Nt P-Forb	FLOWERING SPURGE
FESELA	0	FESTUCA ELATIOR	2	FACU+	Ad P-Grass	TALL FESCUE
FRAVEA	8	Fragaria vesca americana	5	UPL	Nt P-Forb	HILLSIDE STRAWBERRY
FRAVIR	1	Fragaria virginiana	1	FAC-	Nt P-Forb	WILD STRAWBERRY
FRAPES	1	Fraxinus p. subintegerrima	0	FAC	Nt Tree	GREEN ASH
GALAPA	1	Galium aparine	3	FACU	Nt A-Forb	ANNUAL BEDSTRAW
GALBOR	7	Galium boreale	0	FAC	Nt P-Forb	NORTHERN BEDSTRAW
GALCIH	7	Galium c. hypomalacum	5	[UPL]	Nt P-Forb	HAIRY WILD LICORICE
GALOBT	5	Galium obtusum	-4	FACW+	Nt P-Forb	WILD MADDER
GALPIL	10	Galium pilosum	5	UPL	Nt P-Forb	HAIRY BEDSTRAW
GERMAC	4	Geranium maculatum	5	[UPL]	Nt P-Forb	WILD GERANIUM
GEUCAN	1	Geum canadense	0	FAC	Nt P-Forb	WOOD AVENS
GEULAT	2	Geum l. trichocarpum	-3	FACW	Nt P-Forb	ROUGH AVENS
GLEHED	0	GLECHOMA HEDERACEA	3	FACU	Ad P-Forb	CREEPING CHARLIE
GLETRI	2	Gleditsia triacanthos	0	FAC	Nt Tree	HONEY LOCUST
HACVIR	0	Hackelia virginiana	1	FAC-	Nt B-Forb	STICKSEED
HAMVIR	8	Hamamelis virginiana	3	FACU	Nt Shrub	WITCH HAZEL
HELDIV	5	Helianthus divaricatus	5	UPL	Nt P-Forb	WOODLAND SUNFLOWER
HELGRO	2	Helianthus grosseserratus	-2	FACW-	Nt P-Forb	SAWTOOTH SUNFLOWER
HEMFUL	0	HEMEROCALLIS FULVA	5	UPL	Ad P-Forb	ORANGE DAY LILY
HESMAT	0	HESPERIS MATRONALIS	5	UPL	Ad P-Forb	DAME'S ROCKET
HEURIC	8	Heuchera richardsonii	1	FAC-	Nt P-Forb	PRAIRIE ALUM ROOT
HOLUMB	0	HOLOSTEUM UMBELLATUM	5	UPL	Ad A-Forb	JAGGED CHICKWEED
HYPHIR	9	Hypoxis hirsuta	0	FAC	Nt P-Forb	YELLOW STAR GRASS
IMPCAP	3	Impatiens capensis	-3	FACW	Nt A-Forb	ORANGE JEWELWEED
IRIFLA	0	IRIS FLAVESCENS	5	UPL	Ad P-Forb	PALE YELLOW IRIS
IRIVIS	5	Iris v. shrevei	-5	OBL	Nt P-Forb	BLUE FLAG
JUNACU	6	Juncus acuminatus	-5	OBL	Nt P-Forb	SHARP-FRUITED RUSH
JUNBRP	9	Juncus brachycephalus	-5	OBL	Nt P-Forb	SHORT-HEADED RUSH
JUNDUD	4	Juncus dudleyi	0	[FAC]	Nt P-Forb	DUDLEY'S RUSH
JUNTEN	0	Juncus tenuis	2	[FACU+]	Nt P-Forb	PATH RUSH
JUNTOR	4	Juncus torreyi	-3	FACW	Nt P-Forb	TORREY'S RUSH
KOECRI	7	Koeleria cristata	5	UPL	Nt P-Grass	JUNE GRASS
LACSER	0	LACTUCA SERRIOLA	0	FAC	Ad B-Forb	PRICKLY LETTUCE
LAMPUR	0	LAMIUM PURPUREUM	5	UPL	Ad A-Forb	PURPLE DEAD NETTLE
LEOCAR	0	LEONURUS CARDIACA	5	UPL	Ad P-Forb	MOTHERWORT
LEPCAM	0	LEPIDIUM CAMPESTRE	5	UPL	Ad B-Forb	FIELD CRESS
LESCAP	4	Lespedeza capitata	3	FACU	Nt P-Forb	ROUND-HEADED BUSH CLOVER
LIAASP	6	Liatris aspera	5	UPL	Nt P-Forb	ROUGH BLAZING STAR
LILMIC	6	Lilium michiganense	-1	FAC+	Nt P-Forb	TURK'S CAP LILY
LILPHA	10	Lilium p. andinum	1	FAC-	Nt P-Forb	PRAIRIE LILY
LITCAN	8	Lithospermum canescens	5	UPL	Nt P-Forb	HOARY PUCCOON
LITCRO	8	Lithospermum croceum	5	UPL	Nt P-Forb	HAIRY PUCCOON
LONMAA	0	LONICERA MAACKII	5	UPL	Ad Shrub	AMUR HONEYSUCKLE
LONTAT	0	LONICERA TATARICA	5	[UPL]	Ad Shrub	TARTARIAN HONEYSUCKLE
LUPPEO	7	Lupinus p. occidentalis	5	UPL	Nt P-Forb	WILD LUPINE
LYCALB	0	LYCHNIS ALBA	5	UPL	Ad A-Forb	WHITE CAMPION
LYCAME	5	Lycopus americanus	-5	OBL	Nt P-Forb	COMMON WATER HOREHOUND
LYCUNI	7	Lycopus uniflorus	-5	OBL	Nt P-Forb	NORTHERN BUGLE WEED
LYTALA	7	Lythrum alatum	-5	OBL	Nt P-Forb	WINGED LOOSESTRIFE
LYTSAL	0	LYTHRUM SALICARIA	-5	OBL	Ad P-Forb	PURPLE LOOSESTRIFE
MAICAI	8	Maianthemum c. interius	5	[UPL]	Nt P-Forb	Maianthemum c. interius
MALPUM	0	MALUS PUMILA	5	UPL	Ad Tree	APPLE
MALNEG	0	MALVA NEGLECTA	5	UPL	Ad B-Forb	COMMON MALLOW
MELALB	0	MELILOTUS ALBA	3	FACU	Ad B-Forb	WHITE SWEET CLOVER
MELLOF	0	MELILOTUS OFFICINALIS	3	FACU	Ad B-Forb	YELLOW SWEET CLOVER
MENARV	5	Mentha a. villosa	-5	[OBL]	Nt P-Forb	WILD MINT
MONFIS	4	Monarda fistulosa	3	FACU	Nt P-Forb	WILD BERGAMOT
MONPUN	5	Monarda punctata	5	UPL	Nt P-Forb	HORSE MINT
MORALB	0	MORUS ALBA	0	FAC	Ad Tree	WHITE MULBERRY
NEPCAT	0	NEPETA CATARIA	1	FAC-	Ad P-Forb	CATNIP
OENBIE	0	Oenothera biennis	3	FACU	Nt B-Forb	COMMON EVENING PRIMROSE
OENCLE	7	Oenothera clelandii	5	[UPL]	Nt B-Forb	SAND EVENING PRIMROSE
ONOSEN	8	Onoclea sensibilis	-3	FACW	Cryptogam	SENSITIVE FERN
OSMCLO	3	Osmorhiza claytonii	4	FACU-	Nt P-Forb	HAIRY SWEET CICELY

Table 2 (cont.). All Plant Species Observed by V3 Consultants at the J-Pit Redevelopment Project.

ACRONYM	C	SCIENTIFIC NAME	W	WETNESS	PHYSIOGNOMY	COMMON NAME
OSMCIN	7	Osmunda cinnamomea	-3	FACW	Cryptogam	CINNAMON FERN
OSMRES	8	Osmunda r. spectabilis	-5	OBL	Cryptogam	ROYAL FERN
OXAEUR	0	Oxalis europaea	3	FACU	Nt P-Forb	TALL WOOD SORREL
OXASTR	0	Oxalis stricta	5	UPL	Nt P-Forb	COMMON WOOD SORREL
OXYRIG	7	Oxypolis rigidior	-5	OBL	Nt P-Forb	COWBANE
PANCAP	1	Panicum capillare	0	FAC	Nt A-Grass	OLD WITCH GRASS
PANDII	0	Panicum dichotomiflorum	-2	FACW-	Nt A-Grass	KNEE GRASS
PANLAT	5	Panicum latifolium	3	FACU	Nt P-Grass	BROAD-LEAVED PANIC GRASS
PANOLS	4	Panicum o. scribnerianum	3	[FACU]	Nt P-Grass	SCRIBNER'S PANIC GRASS
PANVIR	5	Panicum virgatum	-1	FAC+	Nt P-Grass	SWITCH GRASS
PARINT	8	Parthenium integrifolium	5	UPL	Nt P-Forb	WILD QUININE
PARQUI	2	Parthenocissus quinquefolia	1	FAC-	Nt W-Vine	VIRGINIA CREEPER
PEDCAN	9	Pedicularis canadensis	2	FACU+	Nt P-Forb	WOOD BETONY
PEDLAN	9	Pedicularis lanceolata	-5	[OBL]	Nt P-Forb	FEN BETONY
PHAARU	0	PHALARIS ARUNDINACEA	-4	FACW+	Ad P-Grass	REED CANARY GRASS
PHLGLI	8	Phlox glaberrima interior	-3	FACW	Nt P-Forb	MARSH PHLOX
PHLPIP	7	Phlox pilosa	1	FAC-	Nt P-Forb	SAND PRAIRIE PHLOX
PHRAUS	1	Phragmites australis	-4	FACW+	Nt P-Grass	COMMON REED
PHYVIV	6	Physostegia virginiana	-5	[OBL]	Nt P-Forb	OBEDIENT PLANT
PHYAME	1	Phytolacca americana	1	FAC-	Nt P-Forb	POKEWEED
PLALAN	0	PLANTAGO LANCEOLATA	0	FAC	Ad P-Forb	ENGLISH PLANTAIN
PLAMAJ	0	PLANTAGO MAJOR	-1	FAC+	Ad P-Forb	COMMON PLANTAIN
POAPRA	0	POA PRATENSIS	1	FAC-	Ad P-Grass	KENTUCKY BLUE GRASS
PODPEL	4	Podophyllum peltatum	3	FACU	Nt P-Forb	MAY APPLE
POLCAL	3	Polygonatum canaliculatum	3	FACU	Nt P-Forb	SMOOTH SOLOMON'S SEAL
POLAMS	4	Polygonum a. stipulaceum	-5	OBL	Nt P-Forb	WATER KNOTWEED
POLLAP	0	Polygonum lapathifolium	-4	FACW+	Nt A-Forb	HEARTSEASE
POLPUN	6	Polygonum punctatum	-5	OBL	Nt A-Forb	SMARTWEED
POLSAG	8	Polygonum sagittatum	-5	OBL	Nt A-Forb	ARROW-LEAVED TEAR-THUMB
POLSCN	1	Polygonum scandens	0	FAC	Nt H-Vine	CLIMBING FALSE BUCKWHEAT
POPALB	0	POPULUS ALBA	5	UPL	Ad Tree	WHITE POPLAR
POPDEL	2	Populus deltoides	-1	FAC+	Nt Tree	EASTERN COTTONWOOD
POPTRE	4	Populus tremuloides	0	FAC	Nt Tree	QUAKING ASPEN
POTSIS	4	Potentilla simplex	4	FACU-	Nt P-Forb	COMMON CINQUEFOIL
PREALB	5	Prenanthes alba	3	FACU	Nt P-Forb	LION'S FOOT
PREALT	8	Prenanthes altissima	3	FACU	Nt P-Forb	TALL WHITE LETTUCE
PRUVUV	0	PRUNELLA VULGARIS	5	[UPL]	Ad P-Forb	LAWN PRUNELLA
PRUAME	5	Prunus americana	5	UPL	Nt Tree	WILD PLUM
PRUSER	1	Prunus serotina	3	FACU	Nt Tree	WILD BLACK CHERRY
PRUVIR	3	Prunus virginiana	3	[FACU]	Nt Shrub	CHOKE CHERRY
PTEAQL	5	Pteridium a. latiusculum	3	FACU	Cryptogam	BRACKEN FERN
PYCTEN	7	Pycnanthemum tenuifolium	0	FAC	Nt P-Forb	SLENDER MOUNTAIN MINT
PYCVIR	5	Pycnanthemum virginianum	-4	FACW+	Nt P-Forb	COMMON MOUNTAIN MINT
QUEALB	5	Quercus alba	0	FAC	Nt Tree	WHITE OAK
QUEBIC	6	Quercus bicolor	-4	FACW+	Nt Tree	SWAMP WHITE OAK
QUEMUH	8	Quercus muhlenbergii	5	UPL	Nt Tree	CHINQUAPIN OAK
QUEVEL	6	Quercus velutina	5	UPL	Nt Tree	BLACK OAK
RANABO	0	Ranunculus abortivus	-2	FACW-	Nt A-Forb	SMALL-FLOWERED BUTTERCUP
RHUCOL	6	Rhus c. latifolia	5	UPL	Nt Shrub	SHINING SUMAC
RHUGLA	1	Rhus glabra	5	UPL	Nt Shrub	SMOOTH SUMAC
RHURAD	2	Rhus radicans	-1	FAC+	Nt W-Vine	POISON IVY
RHUTYP	1	Rhus typhina	5	UPL	Nt Tree	STAGHORN SUMAC
RIBAME	7	Ribes americanum	-3	FACW	Nt Shrub	WILD BLACK CURRANT
RIBCYN	5	Ribes cynosbati	5	UPL	Nt Shrub	PRICKLY WILD GOOSEBERRY
ROBPSE	0	ROBINIA PSEUDOACACIA	4	FACU-	Ad Tree	BLACK LOCUST
RORPAF	4	Rorippa p. fernaldiana	-5	OBL	Nt A-Forb	MARSH CRESS
ROSCAR	5	Rosa carolina	4	FACU-	Nt Shrub	PASTURE ROSE
ROSMUL	0	ROSA MULTIFLORA	3	FACU	Ad Shrub	MULTIFLORA ROSE
RUBALL	3	Rubus allegheniensis	2	FACU+	Nt Shrub	COMMON BLACKBERRY
RUBFLA	3	Rubus flagellaris	4	FACU-	Nt Shrub	COMMON DEWBERRY
RUBHIS	9	Rubus hispidus	-3	FACW	Nt Shrub	SWAMP DEWBERRY
RUBOCC	2	Rubus occidentalis	5	UPL	Nt Shrub	BLACK RASPBERRY
RUMCRI	0	RUMEX CRISPUS	-1	FAC+	Ad P-Forb	CURLY DOCK
RUMORB	8	Rumex orbiculatus	-5	OBL	Nt P-Forb	GREAT WATER DOCK
SALBAB	0	SALIX BABYLONICA	-3	FACW	Ad Tree	WEEPING WILLOW
SALDIS	2	Salix discolor	-3	FACW	Nt Shrub	PUSSY WILLOW
SALHUM	6	Salix humilis	3	FACU	Nt Shrub	PRAIRIE WILLOW

Table 2 (cont.). All Plant Species Observed by V3 Consultants at the J-Pit Redevelopment Project.

ACRONYM	C	SCIENTIFIC NAME	W	WETNESS	PHYSIOGNOMY	COMMON NAME
SALINT	1	Salix interior	-5	OBL	Nt Shrub	SANDBAR WILLOW
SALNIG	4	Salix nigra	-5	OBL	Nt Tree	BLACK WILLOW
SAMCAN	1	Sambucus canadensis	-2	FACW-	Nt Shrub	ELDERBERRY
SANGRE	2	Sanicula gregaria	-1	FAC+	Nt P-Forb	CLUSTERED BLACK SNAKEROOT
SAPOFF	0	SAPONARIA OFFICINALIS	3	FACU	Ad P-Forb	BOUNCING BET
SASALB	3	Sassafras albidum	3	FACU	Nt Tree	SASSAFRAS
SAXPEN	10	Saxifraga pensylvanica	-3	FACW	Nt P-Forb	SWAMP SAXIFRAGE
SCIFLU	4	Scirpus fluviatilis	-5	OBL	Nt P-Sedge	RIVER BULRUSH
SCIPUN	5	Scirpus pungens	-5	OBL	Nt P-Sedge	CHAIRMAKER'S RUSH
SCRLAN	5	Scrophularia lanceolata	-1	FAC+	Nt P-Forb	EARLY FIGWORT
SCRMAR	4	Scrophularia marilandica	4	FACU-	Nt P-Forb	LATE FIGWORT
SCUEPI	5	Scutellaria epilobiifolia	-5	OBL	Nt P-Forb	MARSH SKULLCAP
SCULAT	5	Scutellaria lateriflora	-5	OBL	Nt P-Forb	MAD-DOG SKULLCAP
SENPAU	6	Senecio pauperculus	-1	FAC+	Nt P-Forb	BALSAM RAGWORT
SETFAB	0	SETARIA FABERI	2	FACU+	Ad A-Grass	GIANT FOXTAIL
SETGLA	0	SETARIA GLAUCA	0	FAC	Ad A-Grass	YELLOW FOXTAIL
SILNOC	0	SILENE NOCTIFLORA	5	UPL	Ad A-Forb	NIGHT-FLOWERING CATCHFLY
SILSTE	6	Silene stellata	5	UPL	Nt P-Forb	STARRY CAMPION
SILINI	5	Silphium integrifolium	5	UPL	Nt P-Forb	ROSIN WEED
SISALB	7	Sisyrinchium albidum	3	FACU	Nt P-Forb	COMMON BLUE-EYED GRASS
SIUSUA	7	Sium suave	-5	OBL	Nt P-Forb	TALL WATER PARSNIP
SMIRAC	3	Smilacina racemosa	3	FACU	Nt P-Forb	FEATHERY FALSE SOLOMON'S SEAL
SMISTE	5	Smilacina stellata	1	FAC-	Nt P-Forb	STARRY FALSE SOLOMON'S SEAL
SMIECI	5	Smilax ecirrhata	5	UPL	Nt P-Forb	UPRIGHT CARRION FLOWER
SMITAH	5	Smilax t. hispida	5	UPL	Nt W-Vine	BRISTLY CAT BRIER
SOLDUL	0	SOLANUM DULCAMARA	0	FAC	Ad W-Vine	BITTERSWEET NIGHTSHADE
SOLALT	1	Solidago altissima	3	FACU	Nt P-Forb	TALL GOLDENROD
SOLCAN	1	Solidago canadensis	3	FACU	Nt P-Forb	CANADA GOLDENROD
SOLGIG	4	Solidago gigantea	-3	FACW	Nt P-Forb	LATE GOLDENROD
SOLGRG	4	Solidago graminifolia	-2	FACW-	Nt P-Forb	COMMON GRASS-LEAVED GOLDENROD
SOLGRN	3	Solidago g. nuttallii	0	[FAC]	Nt P-Forb	HAIRY GRASS-LEAVED GOLDENROD
SOLNEM	4	Solidago nemoralis	5	UPL	Nt P-Forb	OLD-FIELD GOLDENROD
SOLPAT	9	Solidago patula	-5	OBL	Nt P-Forb	SWAMP GOLDENROD
SOLRIG	4	Solidago rigida	4	FACU-	Nt P-Forb	STIFF GOLDENROD
SOLSEM	0	SOLIDAGO SEMPERVIRENS	3	[FACU]	Ad P-Forb	SEASIDE GOLDENROD
SOLSPE	7	Solidago speciosa	5	UPL	Nt P-Forb	SHOWY GOLDENROD
SOLULM	5	Solidago ulmifolia	5	UPL	Nt P-Forb	ELM-LEAVED GOLDENROD
SORNUT	5	Sorghastrum nutans	2	FACU+	Nt P-Grass	INDIAN GRASS
SPAPEC	4	Spartina pectinata	-4	FACW+	Nt P-Grass	PRAIRIE CORD GRASS
SPIALB	7	Spiraea alba	-4	FACW+	Nt Shrub	MEADOWSWEET
SPOHET	10	Sporobolus heterolepis	4	FACU-	Nt P-Grass	PRAIRIE DROPSEED
STAPAH	5	Stachys p. homotricha	-5	OBL	Nt P-Forb	WOUNDWORT
STATEH	5	Stachys t. hispida	-4	FACW+	Nt P-Forb	MARSH HEDGE NETTLE
STEMED	0	STELLARIA MEDIA	3	FACU	Ad A-Forb	COMMON CHICKWEED
STISPA	7	Stipa spartea	5	UPL	Nt P-Grass	PORCUPINE GRASS
SYMORB	0	SYMPHORICARPOS ORBICULATUS	3	FACU	Ad Shrub	CORALBERRY
TAROFF	0	TARAXACUM OFFICINALE	3	FACU	Ad P-Forb	COMMON DANDELION
TEUCAN	3	Teucrium canadense	-3	FACW	Nt P-Forb	GERMANDER
THADAD	5	Thalictrum dasycarpum	-2	FACW-	Nt P-Forb	PURPLE MEADOW RUE
THADIO	7	Thalictrum dioicum	2	FACU+	Nt P-Forb	EARLY MEADOW RUE
THLARV	0	THLASPI ARVENSE	5	UPL	Ad A-Forb	PENNY CRESS
TRAOHI	2	Tradescantia ohiensis	2	FACU+	Nt P-Forb	COMMON SPIDERWORT
TRADUB	0	TRAGOPOGON DUBIUS	5	UPL	Ad B-Forb	SAND GOAT'S BEARD
TRAPRA	0	TRAGOPOGON PRATENSIS	5	UPL	Ad B-Forb	COMMON GOAT'S BEARD
TYPANG	1	Typha angustifolia	-5	OBL	Nt P-Forb	NARROW-LEAVED CATTAIL
TYPLAT	1	Typha latifolia	-5	OBL	Nt P-Forb	BROAD-LEAVED CATTAIL
ULMPUM	0	ULMUS PUMILA	5	UPL	Ad Tree	SIBERIAN ELM
URTPRO	2	Urtica procera	-1	FAC+	Nt P-Forb	TALL NETTLE
VERTHA	0	VERBASCUM THAPSUS	5	UPL	Ad B-Forb	COMMON MULLEIN
VERHAS	4	Verbena hastata	-4	FACW+	Nt P-Forb	BLUE VERVAIN
VERSTR	4	Verbena stricta	5	UPL	Nt P-Forb	HOARY VERVAIN
VERURU	5	Verbena urticifolia	5	UPL	Nt P-Forb	HAIRY WHITE VERVAIN
VIBLEN	5	Viburnum lentago	-1	FAC+	Nt Shrub	NANNYBERRY
VIBOPU	0	VIBURNUM OPULUS	3	[FACU]	Ad Shrub	EUROPEAN HIGHBUSH CRANBERRY
VIBRAF	5	Viburnum rafinesquianum	5	UPL	Nt Shrub	DOWNY ARROW-WOOD
VIOSOR	3	Viola sororia	1	FAC-	Nt P-Forb	COMMON BLUE VIOLET
VITAES	7	Vitis aestivalis	3	FACU	Nt W-Vine	SUMMER GRAPE

Table 2 (cont.). All Plant Species Observed by V3 Consultants at the J-Pit Redevelopment Project.

ACRONYM	C	SCIENTIFIC NAME	W	WETNESS	PHYSIOGNOMY	COMMON NAME
VITRIP	2	Vitis riparia	-2	FACW-	Nt W-Vine	RIVERBANK GRAPE
XANAME	3	Xanthoxylum americanum	5	UPL	Nt Shrub	PRICKLY ASH
ZIZAUR	7	Zizia aurea	-1	FAC+	Nt P-Forb	GOLDEN ALEXANDERS

Table 3. Wildlife Species Observed by V3 Consultants at the J-Pit Redevelopment Project.

Common Name	Scientific Name	Status*	Pilot Section
Barred Owl	*Strix varia*	NL	1
Hairy Woodpecker	*Picoides villosus*	NL	1
Tree Swallow	*Iridoprocne bicolor*	NL	1
American Robin	*Turdus migratorius*	NL	1, 2, 3, 4
European Starling	*Sturnus vulgaris*	NL	1, 2, 3, 4
Northern Cardinal	*Cardinalis cardinalis*	NL	1, 2, 3, 4
Song Sparrow	*Melospiza melodia*	NL	1, 2, 3, 4
Eastern Red Squirrel	*Scurius niger*	NL	1, 2, 4
American Crow	*Corvus brachyrhynchos*	NL	1, 3, 4
Black-capped Chickadee	*Parus atricapillus*	NL	1, 4
Blue Jay	*Cyanocitta cristata*	NL	2, 4
Mourning Dove	*Zenaida macroura*	NL	3, 4
Black Swallowtail	*Papilio polyxenes asterius*	NL	4
Snowberry Clearwing	*Hemaris diffinis*	NL	4
American Coot	*Fulica americana*	NL	J-Pit
American Goldfinch	*Cardulelis tristis*	NL	J-pit
Canada Goose	*Branta Canadensis*	NL	J-Pit
Common Yellowthroat	*Geothlypis trichas*	NL	J-pit
Green Heron	*Butorides striatus*	NL	J-pit
Mallard	*Anas platyrhynchos*	NL	J-Pit
Ring-billed Gull	*Larus delawarensis*	NL	J-Pit
American Tree Sparrow	*Spizella arborea*	NL	J-Pit, 1, 2
Red-winged Blackbird	*Agelaius phoeniceus*	NL	J-Pit, 3, 4
Northern "Baltimore" Oriole	*Icterus galbula*	NL	J-Pit, 4

* NL = not listed; SE = state endangered; SSC = Species of Special Concern; SR = state rare; SG = significant natural area or habitat; LT = threatened at the federal level; LE = endangered at the federal level; LC = federal candidate species.

APPENDIX III:

REPRESENTATIVE PHOTOGRAPHS

PHOTO 1

Photo date: 1/11/02

Photo showing a Black Oak-dominated remnant dune (Area 1) located on Pilot Section 1 west of Colfax Street; view southeast

PHOTO 2

Photo date: 1/11/02

Photo showing an old road running along the remnant dune in Area 1, east of Colfax Street. Note the honeysuckle growth within the historically cleared area; view west.

PHOTO 3

Photo date: 1/11/02

Location of Data Point 1 within the old road corridor running through the eastern of Area 1.

PHOTO 4

Photo date: 1/11/02

Location of Data Point 4 within a dune depression in Area 1, west of Colfax Street.

PHOTO 5

Photo date: 1/11/02

Overview of the Green Space Site (J-Pit) looking southwest from the northern slope.

PHOTO 6

Photo date: 1/11/02

Overview of the Green Space Site (J-Pit) looking west from the eastern slope.

PHOTO 7

Photo date: 1/14/02

Representative photo of Area 2a in Pilot Section 2; view northeast. Note weeds and abundance of non-native grass species.

PHOTO 8

Photo date: 1/14/02

Photo showing location of Data Point 5 within Area 2a; view west.

PHOTO 9

Photo date: 1/14/02

Photo showing location of Data Point 6 within a small, isolated wetland (Area 2b) near the southwestern corner of Pilot Section 2; view southeast.

PHOTO 10

Photo date: 1/14/02

Photo showing location of Data Point 7 (Area 2a) within a depression near the wetland (Area 2b) shown in Photo 9; view north. This area does not qualify as wetland.

PHOTO 11

Photo date: 1/14/02

Representative photo of the northwestern portion of Pilot Section 3 (Area 3a); view northeast. Note that the ground is uniformly covered by ground plastic and rubber.

PHOTO 12

Photo date: 1/14/02

Photo showing location of Data Point 18 near the northeastern corner of Area 3a; view south. Note Common Reed growing in non-hydric soil.

PHOTO 13

Photo date: 1/14/02

Photo showing location of Data Point 13 within a former dune portion of Area 3a; view southeast.

PHOTO 14

Photo date: 1/14/02

Representative photo of the emergent wetland located (Area 3c) on the southern end of Pilot Section 3. Note Reed Canary Grass, Cattail, and Purple Loosestrife abundance.

PHOTO 15

Photo date: 1/14/02

A typical debris pile in Area 3a.

PHOTO 16

Photo date: 1/14/02

Overview of existing conditions along the northern and eastern portions of Area 3a. This area is not wetland.

PHOTO 17

Photo date: 1/14/02

Photo showing location of Data Point 21 within the northwestern portion of Area 3a; view north.

PHOTO 18

Photo date: 1/14/02

Overview of the large emergent wetland (Area 4b) located on the southern half of Pilot Section 4; view southeast. Note dominance by Common Reed, Cattail, and Purple Loosestrife.

PHOTO 19

Photo date: 1/14/02

Photo showing location of the surface connection between the large emergent wetland and the swale of Area 4b; view west. The large wetland is located on left side of photo and the swale is to the right.

PHOTO 20

Photo date: 1/14/02

Photo showing location of Data Point 10 on the eastern upland portion Area 4a; view north.

PHOTO 21

Photo date: 1/14/02

Photo showing location of Data Point 11 within Area 4b.

PHOTO 22

Photo date: 1/14/02

Representative photo of one of the dunes located in the southern half of Pilot Section 4; view west. Notice the unauthorized ATV trails.

PHOTO 23

Photo date: 1/14/02

Photo showing the graded portion of a dune at the southwestern corner of Area 4a that currently supports high quality sand prairie.

PHOTO 24

Photo date: 1/14/02

Overview of the borrow pit (Area 4c) centrally located on the northern half of Pilot Section 4; view east. Note: Photo taken during initial site investigation

PHOTO 25

Photo date: 1/14/02

Photo showing location of Data Point 16 within a wooded depression in the northern half of Pilot Section 4. This area does not qualify as wetland.

PHOTO 26

Photo date: 1/14/02

Photo showing the location of Data Point 17 near the northeastern corner of Area 4a; view northeast.

PHOTO 27

Photo date: 09/03/03

Overview of Area 4c during the 2003 re-evaluation, view east.

PHOTO 28

Photo date: 09/03/03

Photo showing location of Data Point 14 within Area 4c, view west.

PHOTO 29

Photo date: 09/03/03

Photo showing location of Data Point 15 in Area 4a, view southeast.

PHOTO 30

Photo date: 09/04/2003

Photo showing location of Data Point 22 in Area 3b, view north.

PHOTO 31

Photo date: 09/04/2003

Photo showing location of Data Point 23 in Area 3c, view north.

APPENDIX IV:

ENDANGERED AND THREATENED SPECIES TABLES

Table 4. Endangered, Threatened and Rare Species, High Quality Natural Communities and Significant Natural Areas Reported within One-half Mile of the J-Pit Redevelopment Project Site*.

Type	Common Name	Scientific Name	State Status	Federal Status	Location **	Date Of Last Record
Amphibian	Mudpuppy	*Necturus maculosus*	SSC	--	Section 11 NW ¼	1986
Reptile	Blanding's Turtle	*Emydoidea blandingii*	SE	LC		
Insect	Karner Blue	*Lycaeides melissa samuelis*	SE	LE	Section 11	1974
Mammal	Franklin's Ground Squirrel	*Spermophilus franklinii*	SE	--	Section 11 SE & NW ¼	1986
Mammal	Indiana Bat	*Myotis sodalis*	SE	LE		
Bird	Black Tern	*Chlidonias niger*	SE	LC		
Bird	Bald Eagle	*Haliaeetus leucocephalus*	SE	LT		
Plant	Northern Bush-honeysuckle	*Diervilla lonicera*	SR	--	Section 11 NE ¼	1999
Prairie	Wet Sand Prairie		SG	--	Section 13 N ½ & NE ¼	1982
Savanna	Dry-mesic Sand Savanna		SG	--	Section 13 N ½ & NE ¼	1982

* Data supplied by Indiana Department of Natural Resources, Division of Nature Preserves on February 18, 2002, and the US Fish and Wildlife Service on March 7, 2002.

** SE = state endangered; SSC = Species of Special Concern; SR = state rare; SG = significant natural area or habitat; LT = threatened at the federal level; LE = endangered at the federal level; LC = federal candidate species.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
BLOOMINGTON FIELD OFFICE (ES)
620 South Walker Street
Bloomington, Indiana 47403-2121
(812) 334-4261 FAX 334-4273

IN REPLY REFER TO:

May 30, 1996

Mr. Brian McBride
Rust Environmental & Infrastructure, Inc.
1240 East Diehl Road
Naperville, Illinois 60563

Dear Mr. McBride:

This responds to your letter dated December 1, 1995, requesting information regarding the potential occurrence of critical habitat and/or Federally endangered and threatened species for the proposed Glenwood Ridge Restricted Waste Disposal Facility in Gary, Indiana. The site is located in Township 36 North, Range 9 West Section 11 of the Highland Quadrangle.

These comments have been prepared under the authority of the Fish and Wildlife Coordination Act (16 U.S.C. 661 et. seq.) and are consistent with the intent of the National Environmental Policy Act of 1969, the Endangered Species Act of 1973, and the U. S. Fish and Wildlife Service's Mitigation Policy.

THREATENED AND ENDANGERED SPECIES

The area described in your letter is within the range of the Federally endangered peregrine falcon (*Falco peregrinus*), Indiana bat (*Myotis sodalis*), bald eagle (*Haliaeetus leucocephalus*), and the Karner blue butterfly (*Lycaeides melissa samuelis*). There is no recent survey information for the bald eagle and Indiana bat within the area of interest, however, there are recent records of the Karner blue butterfly and the peregrine falcon utilizing this area.

The habitat of the Karner blue butterfly is characterized by the presence of the wild lupine plant (*Lupinus perennis*), a member of the pea family. Wild lupine is the only known food source for the larval Karner blue butterfly. Habitat in the midwestern United States is dry and sandy, and includes oak savanna and jack pine and other dune/sandplain communities. The Karner blue usually has 2 broods each year, one in early spring and one in the summer (USFWS, 1992). The Heritage Database has a record from 1974 of the Karner blue butterfly at a site just north of the project area. That area is a historic Karner blue butterfly site and still provides lupine and the potential for reintroduction of the species (McCloskey, 1993). If lupine is found in the project area, we recommend that your office recoordinate with us before proceeding with project plans.

Peregrine falcon habitat is usually described as open country along large rivers, lakes, and coastlines. High cliffs of bluffs are often used as nest sites, however, breeding is also presently occurring on high buildings, bridges, and other man-made structures in cities.

Bald eagles nest in close proximity to lakes, rivers, or reservoirs. The eagles construct their nests near habitat ecotones, such as lakeshores, rivers, and timber management areas (clearcuts or selective cuts). Tolerance of human activity during the nesting season has been variable, but, ideally, human disturbance of eagles should be avoided. The bald eagle's food base from the watershed includes carrion, waterfowl, and especially fish.

The Indiana bat uses woodlands during the summer when maternity colonies utilize trees with loose bark for nesting. These bats forage primarily over wooded stream corridors, although they have been collected in grazed woodlots, mature deciduous forests, and pastures with trees.

OTHER SPECIES OF CONCERN

In addition to the above mentioned species, the Blanding's turtle (*Emydoidea blandingii*), sticky goldenrod (*Solidago simplex var gillmanii*), and wolf spikerush (*Eleocharis wolfii*) are also potentially found within the area of interest. These species are not afforded legal protection under the authorities of the Endangered Species Act (as amended); however, agencies are encouraged to conserve these species because there is general concern among resource agencies for their status.

The National Wetland Inventory (NWI) map indicates that there may be palustrine, forested; palustrine, unconsolidated; and palustrine emergent wetlands within the area of interest. Water and other habitat resources of palustrine wetlands are attractive to numerous wildlife species, including birds, bats, and plants. In particular, migratory birds such as wood ducks (*Aix sponsa*), mallards (*Anas platyrhynchos*), and tree swallows (*Tachycineta bicolor*) will utilize open-water wetlands and are subject to potential impacts from contaminants. We recommend that project plans be designed to avoid future impacts to the wetland habitat, particularly regarding contamination.

Based on the occurrence of wetlands on and adjacent to the site, certain activities may require a permit under Section 404 of the Clean Water Act. This process is administered by the U.S. Army Corps of Engineers. The Corp address is:

U.S. Army Corps of Engineers
Detroit District
P.O. Box 1027
Detroit, Michigan 48231

The information forwarded to our office did not mention the contaminants of concern, nor their potential migration pathways. Contamination from this site may migrate to nearby wetlands, waterways, or other areas of ecological significance. Pathways of migration may include leachate/ground water, surface water, and sediment. Under conditions that allow certain contaminants to accumulate in waterways, aquatic organisms can bioaccumulate these elements; consequently, elevated or toxic concentrations may be reached.

Since the contaminants of concern and the pathway of migration are unknown, this letter does not preclude the need for further consultation on this project as required under Section 7 of the Endangered Species Act of 1973, as amended.

The information provided does not include concerns for other wildlife resources. Therefore, the FWS recommends that you also contact the Indiana Department of Natural Resources, Division of Nature Preserves, and Division of Fish and Wildlife concerning possible State-listed species and other resource concerns. Their addresses are:

Indiana Department of Natural Resources
Division of Nature Preserves
402 West Washington, Rm W267
Indianapolis, Indiana 46204

Indiana Department of Natural Resources
Division of Fish & Wildlife
402 West Washington, Rm W273
Indianapolis, Indiana 46204

We appreciate the opportunity to comment at this early stage of project planning. If we can be of further assistance please contact Robin McWilliams of my staff at (812)334-4261 ext 215.

Sincerely yours,

for Michael S. Litwin acting
David C. Hudak,
Supervisor

cc: Director, Indiana Division of Fish and Wildlife, Indianapolis, IN
Katie Smith, Division of Fish and Wildlife, IDNR, Indianapolis, IN
IDNR, Division of Nature Preserves, Indianapolis, IN
Jim Smith, IDEM, Indianapolis, IN
Wayne Faatz, IDNR, Indianapolis, IN
IDEM, Emergency Response, Indianapolis, IN
U.S. Army Corp of Engineers, Detroit, MI
Liz McCloskey, USFWS, NISO, Warsaw, IN
Carol Witt-Smith, EPA, RCRA Enforcement Branch, Chicago, IL HRP-8J
Carol Alexander, EPA, Chicago, IL ME19J

REFERENCES

U.S. Fish and Wildlife Service. 1992. Endangered and Threatened Wildlife and Plants; Determination of Endangered Status for the Karner Blue Butterfly. Federal Register, Vol. 57, No. 240, 50 CFR Part 17. FINAL RULE.

McCloskey, E. 1993. Survey for Lupine in Northwest Indiana. U.S. Fish and Wildlife Service, Northern Indiana Field Office, Warsaw, Indiana.

IN REPLY REFER TO:

United States Department of the Interior

FISH AND WILDLIFE SERVICE

BLOOMINGTON FIELD OFFICE (ES)
620 South Walker Street
Bloomington, Indiana 47403-2121
(812) 334-4261 FAX 334-4273

March 7, 2002

Mr. Tom Hintz
V3 Consultants
7325 Janes Avenue, Suite 100
Woodridge, Illinois 60517

Project No: 01210.w21
Project: J-Pit Redevelopment Project
Waterway: Isolated wetlands
Work Type: Land development/redevelopment
Location: Gary, Lake County, Indiana

Dear Mr. Hintz:

This responds to your letter dated February 5, 2002, to Mr. John Rogner of the U.S. Fish and Wildlife Service's Chicago, Illinois Field Office, requesting our comments on the aforementioned project. This office and our Northern Indiana Suboffice, Chesterton, Indiana, have responsibility for addressing projects in Indiana, so your request was forwarded to us for response.

These comments have been prepared under the authority of the Fish and Wildlife Coordination Act (16 U.S.C. 661 et. seq.) and are consistent with the intent of the National Environmental Policy Act of 1969, the Endangered Species Act of 1973, and the U. S. Fish and Wildlife Service's Mitigation Policy.

The project study area is located within the globally imperiled "dune and swale" ecosystem, which is officially designated as Alkaline Shoredunes Pond/Marsh, Great Lakes Type, and Barrens, Central Midwestern Type (Bowles 1989, TNC 1994). A 1917 map of the original beach ridges is provided as Enclosure No. 1. Information on the geology of the dune and swale ecosystem can be found within Blatchley 1898, Bieber 1951, and Thompson 1994.

The remaining natural sites within this ecosystem are characterized by dry sand dunes separated by alternating muck filled wet swales. These represent old beach ridges deposited during a higher stage of glacial Lake Michigan and are located inland from the modern lake shoreline. Upland barrens vegetation is characterized by sand savanna - open grown black oak dispersed among sand prairie vegetation - while alkaline shoredunes support wet prairie, panne, shrub swamp, marsh and pond vegetation. Both flora and fauna diversity are extremely high. One of the State Nature Preserves alone supports greater diversity and more State-listed species than any other site in Indiana. We recommend you request specific information about the natural areas and State-listed species from the Indiana Department of Natural Resources, Division of Nature Preserves (IDNR, DNP)

The proposed project area consists of 4 undeveloped or previously developed and currently vacant parcels adjacent to a former sand mine known as the J-Pit and the Gary Landfill, which is now closed. Section 1 is along the south side of 15th Avenue, east and west of Colfax Street. However, the portion of the parcel east of

Colfax does not exist as drawn on the enclosed maps. Most of the south half of this area has been excavated for some purpose related to the Landfill (Enclosure No. 2 and Photograph No. 1). The narrow section remaining along 15th Avenue contains a small remnant of the native black oak savanna and dry sand prairie (Photograph No. 2) and 2 churches with ancillary facilities (Enclosure No. 2). The Palustrine emergent seasonal wetland (PEMC) shown on the copy of the National Wetlands Inventory (NWI) map enclosed with your letter exists only as a mostly dry remnant behind the churches because of the excavation of the site and alteration of the hydrology. Given the small size of undeveloped land available in this portion of Section 1, we doubt there is much development potential.

The portion of Section 1 west of Colfax has several occupied buildings, native black oak savanna on remnant sand dunes (Photograph No. 3), and previously leveled sand dunes (Enclosure No. 3). It appears from your enclosures that the previously heavily developed western portion shown on the aerial photograph is not included within Section 1 and that the line is somewhere within the wooded portion of the Section. Since black oak trees still exist on sand dunes, a botanical survey should be conducted on this site prior to any development proposals to determine whether or not any Indiana-listed plant species are present.

Section 2 is a previously developed parcel south of the J-Pit between Fairbanks Street and Colfax Street. This area was once primarily residential land, like the lands to the south of platted 22nd Avenue, its southern border. The houses and other buildings and developments have been removed and the land is vacant, with scattered patches of native oaks and numerous old shade trees, such as Siberian elm, Eastern cottonwood, and silver maple (Photograph No. 4). Given the previously extensively disturbed nature of this Section, native habitats are not expected to be present.

Section 3 is an irregularly-shaped parcel north of 23rd Avenue and west of platted Calhoun Street on the south side of the Gary Landfill. Much of the southeastern portion of this parcel, between platted Calhoun Street and King Street, is wetland (Photographs No. 5 and No. 6). It appears that the portion north of platted 22nd Avenue is previously disturbed upland (Enclosure No. 4). The small area that extends west to Colfax north of existing automotive scrap yards is also previously disturbed upland (Photograph No. 7). The portion of the Section that is wetland would not be available for development, but the majority of the site, north of platted 22nd Avenue, should be available for redevelopment after appropriate surveys for possible contaminants.

Section 4 is located between Fairbanks Street and the EJ&E Railroad tracks. The J-Pit is the north border and platted 23rd Avenue is the southern border. The north half of the parcel was previously developed to some extent, possibly consisting of leveling of the dunes and only a few construction activities since a large number of young oaks and other native species still remain (Photograph No. 8). This area, north of platted 22nd Avenue, is fenced and has unimproved drives within it (Enclosure No. 5). If development is proposed, a botanical survey should first be conducted to determine whether or not any rare native species are present.

The south half of Section 4 is native dune and swale habitat, with a large emergent wetland interspersed with narrow upland ridges supporting black oak savanna (Photograph No. 19). Residential land is south of this wetland except in the southwest corner, where there is a community park that includes boardwalks through the wetlands and paved trails through the savanna. The south half of Section 4, south of platted 22nd Avenue, should be incorporated into this existing park and managed as natural habitat (Enclosure No. 6).

As part of the environmental impact review, it will be necessary to conduct a detailed wetland delineation of the sites. Given the rareness of the dune and swale ecosystem, the U.S. Fish and Wildlife Service believes that avoidance of wetland impacts is the preferred course of action and should be attainable here because most

of the lands being evaluated are previously disturbed and/or uplands. The U.S. Army Corps of Engineers, Detroit District, and Indiana Department of Environmental Management will have to determine whether or not a permit would be required for the filling of wetlands in the project area. However, if Federal funds are to be used for any aspect of the proposed redevelopment project, the Federal agency has an obligation to minimize the destruction, loss or degradation of wetlands pursuant to Executive Order 11990, as amended by Executive Order 12608, concerning protection of wetlands, regardless of the need for a wetland fill permit.

ENDANGERED SPECIES

The proposed project is within the range of the Federally endangered Indiana bat (Myotis sodalis) and Karner blue butterfly (Lycaeides melissa samuelis) and the threatened bald eagle (Haliaeetus leucocephalus). There is no habitat available in the project vicinity for the Indiana bat or bald eagle. The Karner blue butterfly is known from Ivanhoe Dune and Swale Nature Preserve about 1 mile north of the proposed project area. It is also known to the northwest in several Nature Preserves in eastern Hammond. However, the major population in Indiana is within the Indiana Dunes National Lakeshore several miles east of the project area. The FWS is considering reintroducing the Karner blue butterfly to suitable dune and swale habitats in western Gary and eastern Hammond as part of the recovery process for the species, but no final determination has been made.

The proposed project area is also within the range of the following Species of Concern being considered for listing as threatened or endangered: Black tern (Chlidonias niger) and Blanding's turtle (Emydoidea blandingii). These species live or breed within wetlands such as those found at the dune and swale habitats around the proposed project area. Black terns nested several years ago along the Grand Calumet River several miles northwest of the project area. Suitable habitat still remains at that site and there may be suitable habitat at other locations along the river, but this species is not expected to be present within the proposed project area. Blanding's turtles have been found both within the Grand Calumet River and the dune and swale wetlands north and south of the river, but their status in the wetland remnants at the proposed project area is unknown. These species are not afforded legal protection under the authorities of the Act; however, the FWS encourages consideration of these species in project planning because there is general concern among resource agencies for their status.

This precludes the need for further consultation on this project as required under Section 7 of the Endangered Species Act of 1973, as amended. However, should new information arise pertaining to project plans or a revised species list be published, it will be necessary for the Federal agency to reinitiate consultation.

We appreciate the opportunity to comment at this early stage of project planning. As plans progress, please keep us informed of project activities. If you have any questions about our comments and recommendations, please call Elizabeth McCloskey at (219) 983-9753.

Sincerely yours,

Elizabeth S. McCloskey

for Scott E. Pruitt
Supervisor
Acting

cc: Marty Maupin, IDEM, Office of Water Management, Indianapolis, IN
Environmental Coordinator, IN Division of Fish & Wildlife, Indianapolis, IN
Tom Post, Indiana Division of Nature Preserves, Medaryville, IN

Photograph No. 1. Looking east from Colfax Street at the excavated southwest side of Section 1, showing that most of the area is gone.

Photograph No. 2. A general view within the remnant of dune and oak savanna remaining near the southeast corner of 15th Avenue and Colfax Street in Section 1.

Photograph No. 3. Looking west from Colfax Street into the dune and oak savanna in the portion of Section 1 west of Colfax.

Photograph No. 4. Looking west into the former residential area west of Colfax Street in Section 2.

Photograph No. 5. Looking east/southeast at the wetland and remnant of dune and savanna in the southeast portion of Section 3, with 23rd Avenue beyond the oaks and Bivona Medical Technologies at left background.

Photograph No. 6. Looking north along the platted line of King Street from near 23rd Avenue, showing the wetland and remnant of oak savanna on dunes.

Photograph No. 7. The northwestern extension of Section 3, looking east from Colfax Street, with Gary Landfill to the north.

Photograph No. 8. Looking west/northwest across the northern half of Section 4 from the end of Fairbanks Street at platted 22nd Avenue.

Photograph No. 9. Looking west from Fairbanks Street at the dune and swale remnant in the south half of Section 4

REFERENCES

Bieber, C.L. 1951. Tolleston and Post-Tolleston Beaches and Bars in Lake County, Indiana. Proceedings of the Indiana Academy of Science 61:176-179.

Blatchley, W.S. 1898. The geology of Lake and Porter Counties, Indiana. pp. 25-104, Indiana Department of Geology and Natural Resources Twenty-second Annual Report, Indianapolis, Indiana.

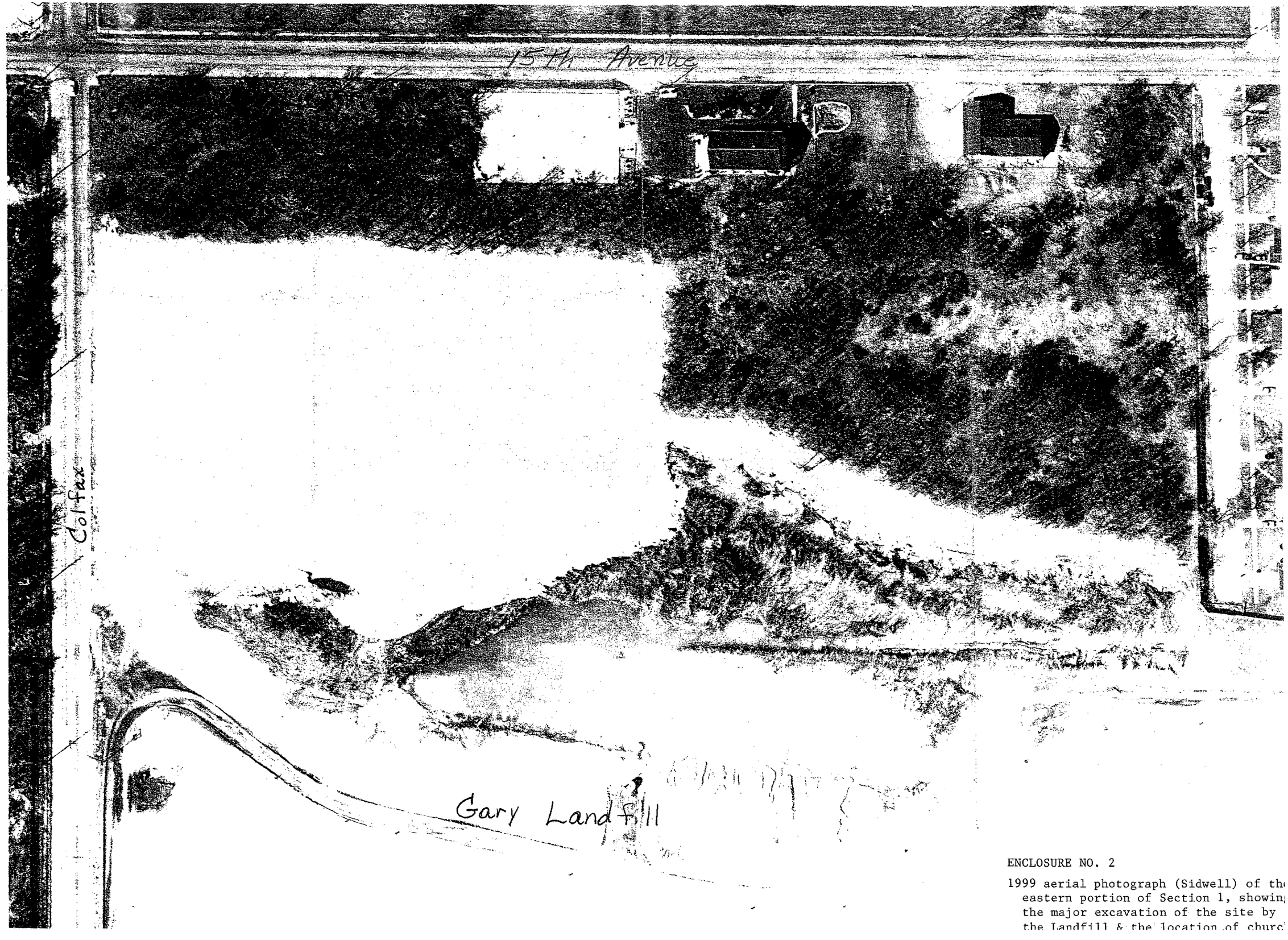
Bowles, Marlin. 1989. Evaluation of Clarke and Pine, Tolleston Ridges, and Gibson Woods, Lake County, Indiana, as potential National Natural Landmarks. Prepared for National Park Service, U.S. Department of the Interior. The Morton Arboretum, Lisle, Illinois. 23pp plus Appendices.

The Nature Conservancy. 1994. The conservation of biological diversity in the Great Lakes Ecosystem: Issues and opportunities. Great Lakes Program Office, Chicago, Illinois. 118pp.

Thompson, Todd A. 1994. History and architecture of wetland development in the Indiana Dunes. Proceedings of the Indiana Academy of Science 103 (3-4): 167-176.

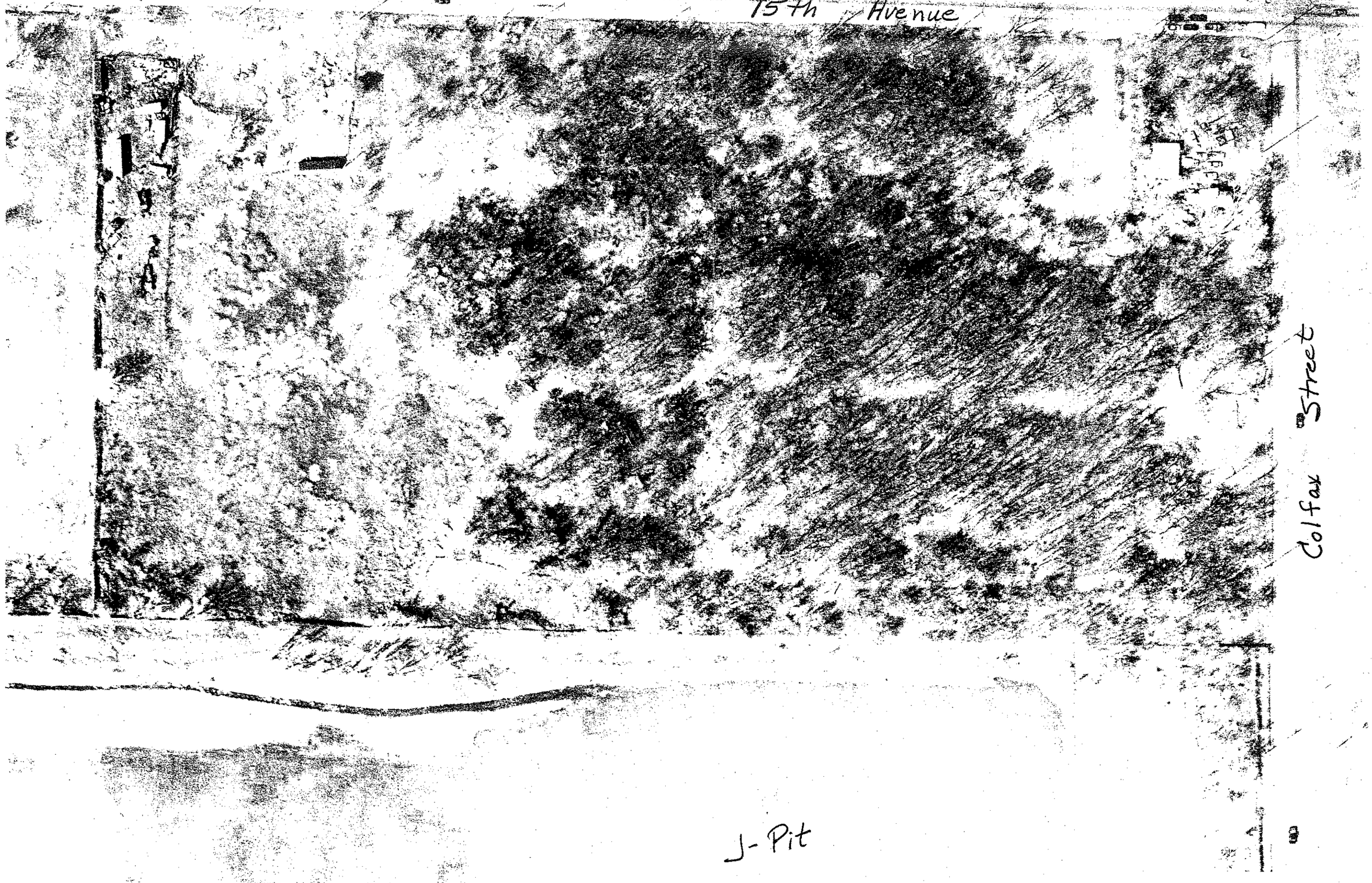
ENCLOSURE NO. 1.

1917 map of western Gary, Hammond, and East Chicago showing the numerous dune and swale ridges and wetlands then present in the area



ENCLOSURE NO. 2

1999 aerial photograph (Sidwell) of the eastern portion of Section 1, showing the major excavation of the site by the Landfill & the location of churc

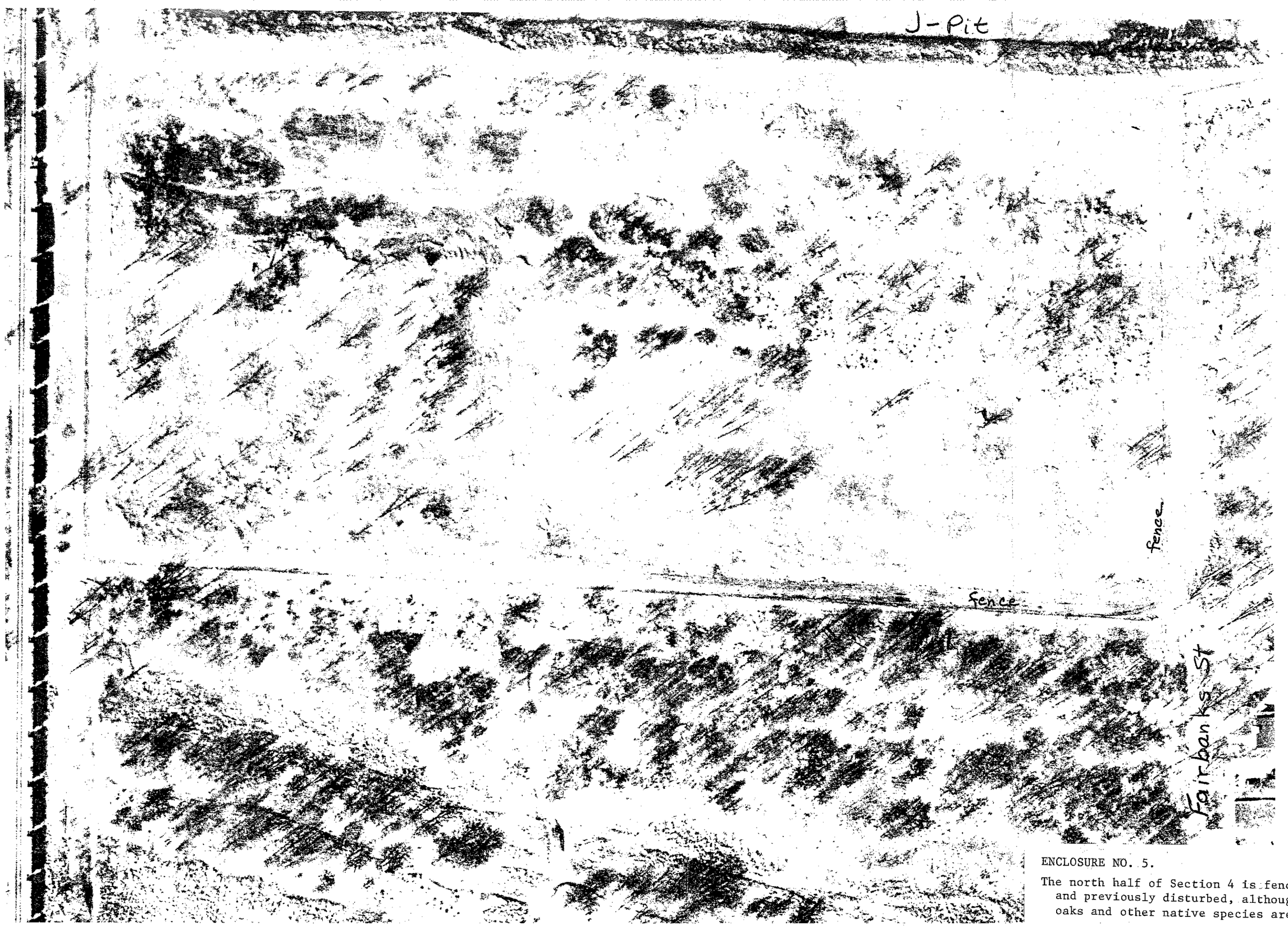


ENCLOSURE NO. 3.

1999 aerial photograph (Sidwell) of the west side of Section 1 at 15th Avenue and Colfax Street

ENCLOSURE NO. 4.

Section 3 east of Colfax Street and north of 23rd Avenue, with remnant oak savanna and wetland in southeast section east of King Street Extended



ENCLOSURE NO. 5.

The north half of Section 4 is fenced and previously disturbed, although oaks and other native species are

ENCLOSURE NO. 6.

The south half of Section 4 is wetland with narrow dunes with oak savanna; connecting to the southwest west of Bell Street is parkland/wetland

CONSULTANTS

Engineers
Scientists
Surveyors

7325 Janes Avenue
Suite 100
Woodridge, IL 60517
630.724.9200
Fax: 630.724.9202
www.v3consultants.com

FILE COPY

February 5, 2002

Mr. John Rogner
U.S. Fish and Wildlife Service
Chicago Illinois Field Office
1000 Hart Road, Suite 180
Barrington, IL 60010

Re: Endangered Species Consultation Program
J-Pit, Redevelopment Project
City of Gary, Porter County Indiana

Dear Mr. Rogner:

Enclosed please find an Endangered Species Consultation Program Request for the above referenced property located in the SW ¼ of Section 11, Calumet Township, T36N, R9W, Highland, In Quadrangle in Lake County. I am looking for any listed threatened or endangered species that might occur on or within ½ mile of the subject property. The 200-acre parcel is composed of four parcels as indicated below:

Parcel 1: Bound on the W by Hobart Street, on the N by 15th. Avenue, on the E by Dallas Street, and on the SE by the Gary Land fill and on the SW by the J-Pit. Located SW of the intersection of 15th. Avenue and Colfax Street, N of the J-pit, and E of Hobart Street.

Parcel 2: Bound on the W by Fairbanks Street, on the N by the J-Pit, on the E by Colfax Street and on the S by 22nd Avenue. Located S of the J-Pit (S of 21st. Avenue), W of Colfax Street, N of 22nd Avenue, and E of Fairbanks Street.

Parcel 3: Bound on the W by Colfax Street, 22nd Avenue, Hamlin Street and King Street: on the N by the closed Gary Landfill, on the E by Calhoun Street and on the South by 23rd Avenue. Located E of Colfax Street, S of 21st Avenue, N of 23rd Avenue, and W of Calhoun.

Parcel 4: Bound on the W by EJ&E Railroad Line, on the N by the J-Pit, on the E by section 2 and Fairbanks Street, and on the S by 23rd Avenue. Located between 21st and 23rd and E of the IJ & E Railroad Line.

Copies of the property location map, NWI map, and the soil survey map are provided with this request. Please return the completed report to Tom Hintz at this office. Thank you for your assistance and please call with any questions.

Sincerely,
V3 CONSULTANTS

Tom Hintz
Senior Ecologist

TEH/cd

E:\2001\01210\wetlands\Correspondence\FWS Agency Action Rpt..doc

DNR Indiana Department of Natural Resources

Frank O'Bannon, Governor
Larry D. Macklin, Director
Division of Nature Preserves
402 W. Washington Street, Rm. W267
Indianapolis, IN 46204-2739

February 18, 2002

Mr. Tom Hintz
V3 Consultants
7325 Janes Avenue
Suite 100
Woodridge IL 60517

Dear Mr. Hintz:

I am responding to your request for information on the endangered, threatened, or rare (ETR) species, high quality natural communities, and natural areas documented within ½ mile of the J-Pit Redevelopment Project area, Gary, Lake County, Indiana. The Indiana Natural Heritage Data Center has been checked and enclosed you will find information on the ETR species and significant areas documented from the project area.

For more information on the animal species mentioned, please contact Katie Smith, Nongame Supervisor, Division of Fish and Wildlife, 402 W. Washington Room W273, Indianapolis, Indiana 46204, (317)232-4080.

The information I am providing does not preclude the requirement for further consultation with the U.S. Fish and Wildlife Service as required under Section 7 of the Endangered Species Act of 1973. You should contact the Service at their Bloomington, Indiana office.

U.S. Fish and Wildlife Service
620 South Walker St.
Bloomington, Indiana 47403-2121
(812)334-4261

At some point, you may need to contact the Department of Natural Resources' Environmental Review Coordinator so that other divisions within the department have the opportunity to review your proposal. For more information, please contact:

Larry Macklin, Director
Department of Natural Resources
attn: Stephen H. Jose
Environmental Coordinator
Division of Fish and Wildlife
402 W. Washington Street, Room W273
Indianapolis, IN 46204
(317)232-4080

Please note that the Indiana Natural Heritage Data Center relies on the observations of many individuals for our data. In most cases, the information is not the result of comprehensive field surveys conducted at particular sites. Therefore, our statement that there are no documented significant natural features at a site should not be interpreted to mean that the site does not support special plants or animals.

Due to the dynamic nature and sensitivity of the data, this information should not be used for any project other than that for which it was originally intended. It may be necessary for you to request updated material from us in order to base your planning decisions on the most current information.

Thank you for contacting the Indiana Natural Heritage Data Center. You may reach me at (317)232-8059 if you have any questions or need additional information.

Sincerely,

Ronald P. Hellmich

Ronald P. Hellmich
Indiana Natural Heritage Data Center

enclosure: data sheet

February 18, 2002

ENDANGERED, THREATENED AND RARE SPECIES,
HIGH QUALITY NATURAL COMMUNITIES, AND SIGNIFICANT NATURAL AREAS DOCUMENTED WITHIN
1/2 MILE OF THE J-PIT REDEVELOPMENT PROJECT AREA, GARY, LAKE COUNTY, INDIANA

TYPE	SPECIES NAME	COMMON NAME	STATE	FED	LOCATION	DATE	COMMENT
HIGHLAND							
Amphibian	NECTURUS MACULOSUS	MUDPUPPY	SSC	**	T36NR09W 11 NWQ	1986	
Insect	LYCAEIDES MELISSA SAMUELIS	KARNER BLUE	SE	LE	T36NR09W 11	1974	
Mammal	SPERMOPHILUS FRANKLINII	FRANKLIN'S GROUND SQUIRREL	SE	**	T36NR09W 11 SEQ NWQ	1986	
Prairie	PRAIRIE - SAND WET	WET SAND PRAIRIE	SG	**	T36NR09W 13 NH NEQ	1982	
Savanna	SAVANNA - SAND DRY-MESIC	DRY-MESIC SAND SAVANNA	SG	**	T36NR09W 13 NH NEQ	1982	
Vascular Plant	DIERVILLA LONICERA	NORTHERN BUSH-HONEYSUCKLE	SR	**	T36NR09W 11 NEQ	1999	

STATE: SX=extirpated, SE=endangered, ST=threatened, SR=rare, SSC=special concern, WL=watch list, SG=significant,** no status but rarity warrants concern

FEDERAL: LE=endangered, LT=threatened, LELT=different listings for specific ranges of species, PE=proposed endangered, PT=proposed threatened, E/SA=appearance similar to LE species, **=not listed

CONSULTANTS

Engineers
Scientists
Surveyors

7325 Janes Avenue
Suite 100
Woodridge, IL 60517
630.724.9200
Fax: 630.724.9202
www.v3consultants.com

FILE COPY

February 5, 2002

Mr. Ronald Hellmich
Indiana Department of Natural Resources
Division of Nature Preserves
402 W. Washington Street W273
Indianapolis, Indiana 46204

Re: Endangered Species Consultation
J-Pit Redevelopment Project
Gary, Lake County, Indiana

Dear Mr. Hellmich:

Enclosed please find an Endangered Species Consultation Program Agency Action Report for the above referenced property located in the SW ¼ of Section 11, Calumet Township, T36N, R9W, Highland, IN Quadrangle in Lake County. I am looking for any listed threatened or endangered species that might occur on or within 0.5 mile of the subject property. Copies of the property location, the NWI map, and the soil survey map are provided.

Please return the completed report to Tom Hintz at this office. Thank you for your assistance and please call with any questions.

Sincerely,
V3 CONSULTANTS

Tom Hintz
Senior Ecologist

TH/cd

Enclosures

APPENDIX V:

J-PIT GREEN SPACE SITE / ACOE JURISDICTIONAL DETERMINATION

DEPARTMENT OF THE ARMY
DETROIT DISTRICT, CORPS OF ENGINEERS
REGULATORY OFFICE
SOUTH BEND FIELD OFFICE
2422 VIRIDIAN DRIVE SUITE # 101
SOUTH BEND, INDIANA 46628

June 20, 2003

IN REPLY REFER TO

File No. 90-145-129-2

Dorreen Carey, Coordinator
City of Gary Department of Environmental Affairs
504 Broadway, Suite 1012
Gary, Indiana 46402

Reference: "Draft Baseline Ecological Assessment," prepared for City of Gary, Indiana, prepared by V3 Consultants, Woodridge, Illinois, dated December 2, 2002.

Dear Ms. Carey:

This is in response to your recent correspondence regarding Department of the Army jurisdiction over the "J-Pit," an actively managed and pumped quarry pit located northwest of the intersection of Colfax and 21st Avenue in Gary, Indiana (Section 11, Township 36N, Range 9W). In the referenced report and enclosed maps it is referred to as the "Green Space Site." We have determined that the J-Pit or Green Space Site does not meet Corps criteria for regulation and is, therefore, not within Federal jurisdiction (reference Preamble to 33 CFR 328.3 (e)).

You submitted the referenced report with your request. On page 25 of that report V3 Consultants state that the wetland delineation for Area 4c has not been completed yet. We are therefore withholding verification of jurisdiction determination regarding any other areas of the property. This letter of verification applies only to the J-Pit proper (("Green Space Site"), as indicated on the enclosed Figure titled "Sheet 1 of 1, J-Pit Redevelopment Project."

This jurisdiction determination is valid for a period of five (5) years from the date of this letter unless new information warrants revision of the delineation before the expiration date. We suggest that you contact the Indiana Department of Environmental Management (IDEM) at P.O. Box 6015, Indianapolis, Indiana 46206-6015, for a determination of State permit requirements.

Thank you for giving us the opportunity to review this proposal. If you have any questions, please contact Steven W. Sprecher at the above address or telephone (574) 232-1952. Please refer to File Number: 90-145-129-2.

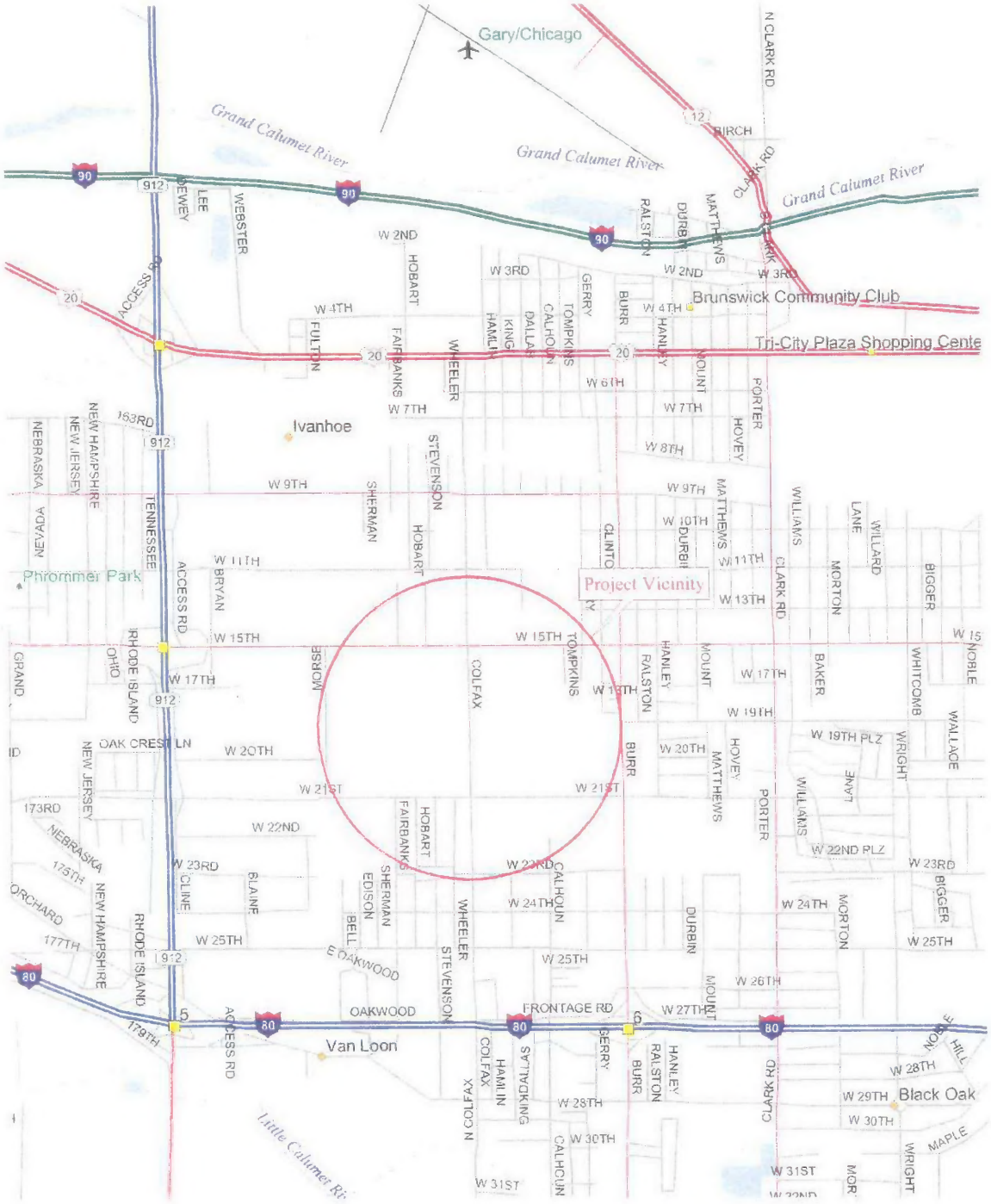
Sincerely,

ORIGINAL SIGNED BY

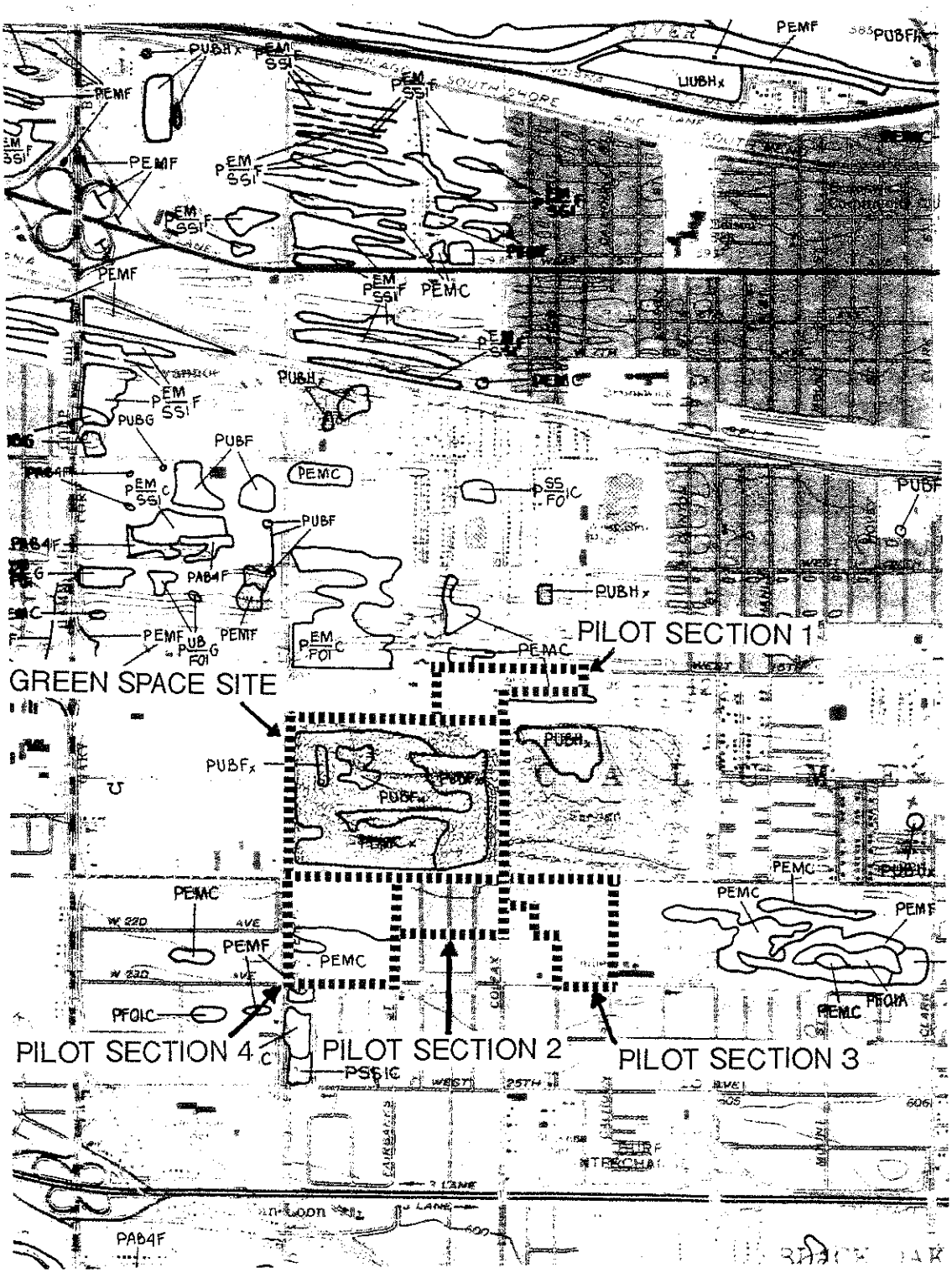
Gregory A. McKay
Project Manager
South Bend Field Office

Copy Furnished
V3 Consultants
Indiana Department of Environmental Management

EXHIBITS

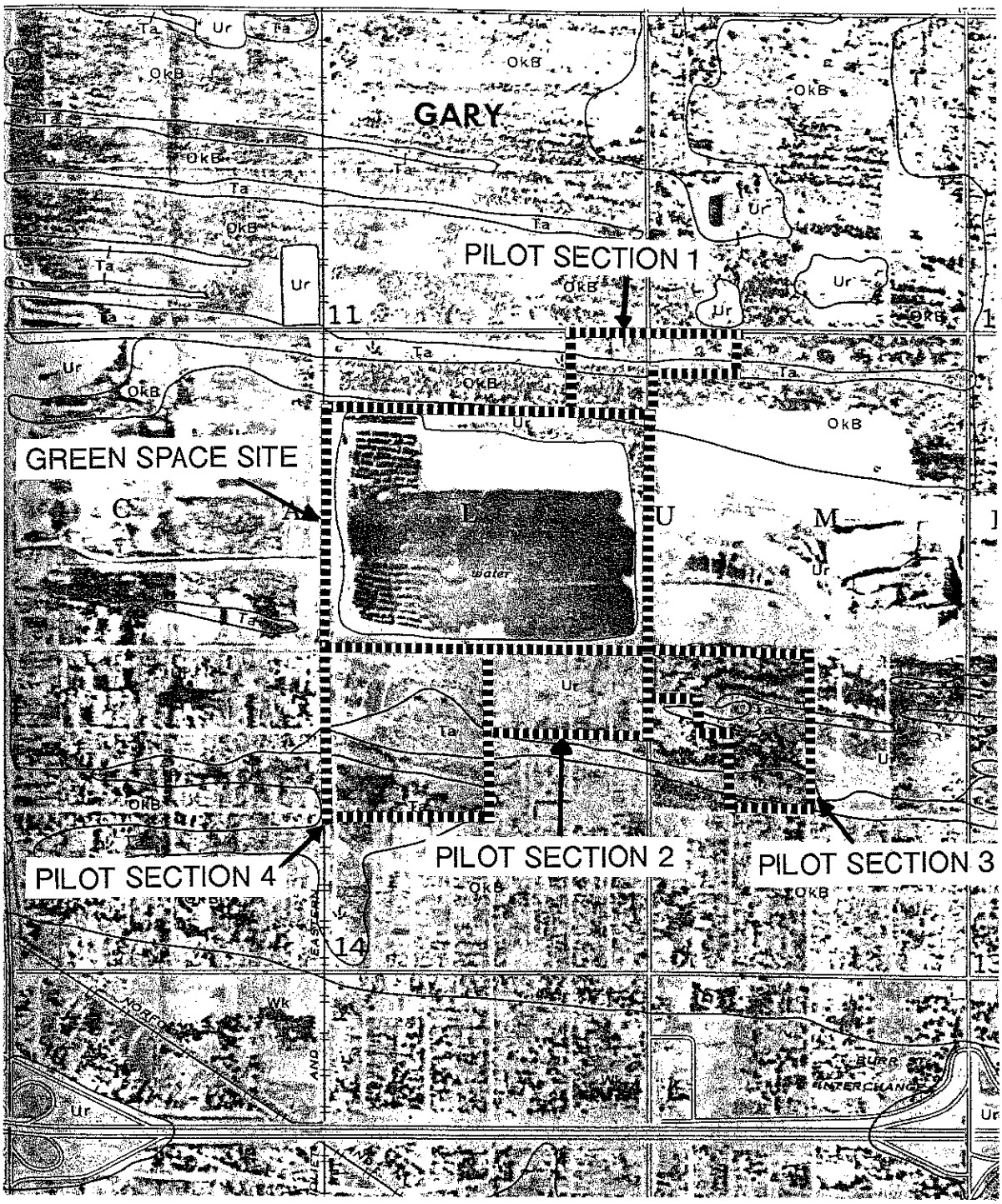


V3 CONSULTANTS Consulting Engineers, Scientists, Surveyors 7325 Janes Avenue, Suite 100 Woodridge, Illinois 60517 (630) 724-9200	TITLE: PROJECT LOCATION MAP	PROJECT: J-PIT REDEVELOPMENT PROJECT		
	CLIENT: CITY OF GARY DEPT. OF ENVIRONMENTAL AFFAIRS 504 Broadway, Suite 1012 Gary, Indiana 46402	PROJECT NO: 01210.W21	EXHIBIT: I	SHEET: 1 OF: 1
		FILE NAME: N/A	DATE: 1/11/02	SCALE: NTS



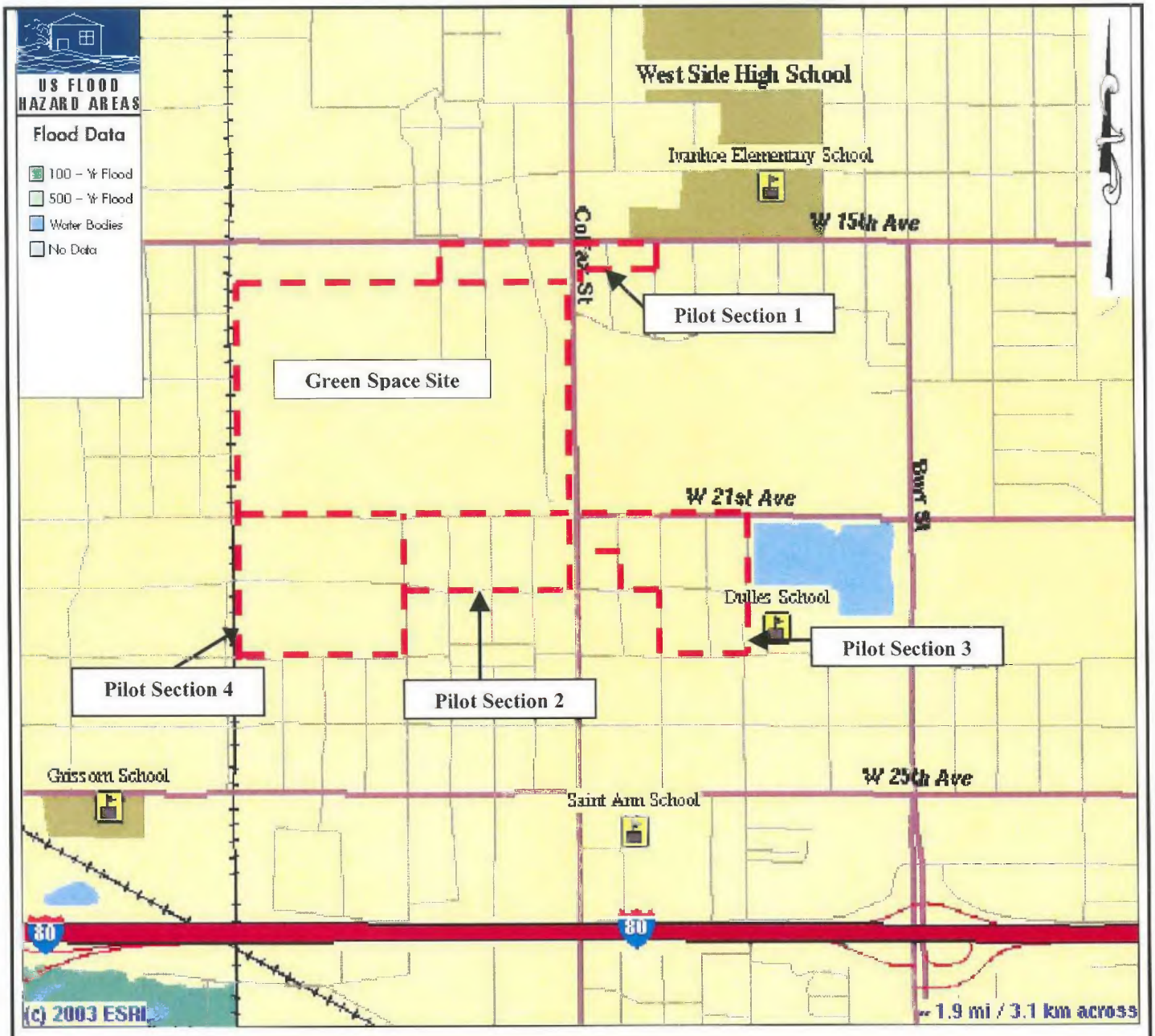
V3 CONSULTANTS Consulting Engineers, Scientists, Surveyors 7325 Janes Avenue, Suite 100 Woodridge, Illinois 60517 (630) 724-9200	TITLE: NATIONAL WETLANDS INVENTORY MAP	PROJECT: J-PIT REDEVELOPMENT PROJECT		
	CLIENT: CITY OF GARY DEPT. OF ENVIRONMENTAL AFFAIRS 504 Broadway, Suite 1012 Gary, Indiana, 46402	PROJECT NO: 01210.021	EXHIBIT: II	SHEET: 1 OF 1
		FILE NAME: N/A	DATE: 1/11/02	SCALE: 1:24000

I:\2001\01210\Wetlands Exhibit.dgn



V3 CONSULTANTS Consulting Engineers, Scientists, Surveyors 7325 Janes Avenue, Suite 100 Woodridge, Illinois 60517 (630) 724-9200	TITLE: LAKE COUNTY SOIL SURVEY MAP	PROJECT: J-PIT REDEVELOPMENT PROJECT		
	CLIENT: CITY OF GARY DEPT. OF ENVIRONMENTAL AFFAIRS 504 Broadway, Suite 1012 Gary, Indiana, 46402	PROJECT NO.: 01210.w21	EXHIBIT: III	SHEET: 1 OF: 1
		FILE NAME: N/A	DATE: 1/11/02	SCALE: 1:15840

E:\2001\01210\wetlands\Exhibits\Exhibit III.doc



V3 CONSULTANTS Consulting Engineers, Scientists, Surveyors 7325 Janes Avenue, Suite 100 Woodridge, Illinois 60517 (630) 724-9200	TITLE: **FEMA FLOOD HAZARD MAP**	PROJECT: **J-PIT REDEVELOPMENT PROJECT**		
	CLIENT: **CITY OF GARY** **DEPT. OF ENVIRONMENTAL AFFAIRS** 504 Broadway, Suite 1012 Gary, Indiana, 46402	PROJECT NO. 01210.w21	EXHIBIT: IV	SHEET: 1 OF: 1
		FILE NAME: N/A	DATE: 1/11/02	SCALE: NTS

E:\2001\01210\Wetlands\Exhibits\Exhibit IV - FEMA Map.doc